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A HYPERTEXT ELECTRONIC JOB AID FOR MAINTENANCE

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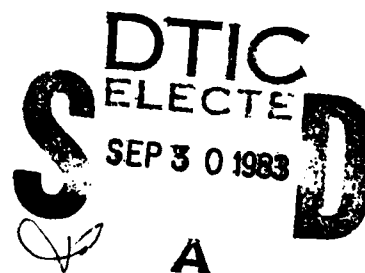and Lois Wilson
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DEVELOPMENT ENGINEERING PROGRAM OFFICE

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One of the most important tasks facing the military services today is that of maintaining complex weapons systems. Unfortunately, this task is not always adequately performed despite its importance.

Electronic job aids have the potential to help Army personnel significantly improve maintenance of complex equipment, provided that the technical information that they present is complete, accurate, and easy to understand and use.

This report describes the use of the TICCIT Hypertext™ Display System to permit technicians of varying levels of expertise to access technical information describing the M-1 tank antenna maintenance procedure.

A HYPERTEXT ELECTRONIC JOB AID FOR MAINTENANCE

Background

One of the most important tasks facing all the military services today is that of maintaining complex systems used in the field and at sea. The volume of printed documentation which has accompanied the introduction of such systems has grown so large that much of it cannot be accessed quickly enough to make it useful for field level maintenance. In addition, such information is hard to store, hard to update, and often written and illustrated at too high a level to be intelligible to military technicians. The problem is further aggravated by the low reading ability of many of today's younger military personnel.

The magnitude of the military maintenance problem has been thoroughly documented (Orlansky and String, 1981, Government Accounting Office, 1979, and PEAM (Personal Electronic Aid for Maintenance) Final Report, 1981). The crux of the problem has been identified as the inability of technicians to troubleshoot and repair complex systems rapidly and accurately. This problem is manifested by a high percentage of error rates in troubleshooting and extended and eventually unacceptable time to repair the equipment.

Several approaches have been taken to attempt to overcome this problem:

1. Formal and on-the-job training

2. Modularization of weapon systems

3. Development of built-in test equipment (BITE)

4. Development of Automatic Test Equipment (ATE)

5. Development of high quality technical manuals

6. Research on the fundamentals of the man-machine interface

Let us now consider each of these approaches in detail.

1. Formal and on-the-job training. Despite increased expenditures on training in the military community, this approach has had limited success for the following reasons:

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a. **Long-term delays between training and on-the-job applications.** A particular fault may occur so infrequently as to make it impossible for the technician to be practiced at locating and correcting it. Such a fault may occur years after the pertinent training.

b. **Sophistication of equipment.** The task of the technician becomes more sophisticated when modularization is introduced because he or she must deal with complex inter-relationships among whole subsystems, rather than individual faulty parts.

c. **Out-dated training techniques.** With only a few exceptions (such as the use of modern computer-based training systems) many military maintenance training techniques are twenty to thirty years behind accepted learning theories and practices.

d. **Loss of skills.** Long military training programs for technicians do not allow for refresher and updated training while on the job. Necessary knowledge and skills are, therefore, lost.

2. **Modularization of military systems.** While modularization was intended to simplify the technician's task by having him or her remove the faulty module and repace it, the success of this approach depended on the availability of replacement modules, the ability of the technician to replace the module without damaging the system, and the diagnostic ability of the technician. The last two of these factors are dependent on the quality of the personnel entering the training system and the ability of armed forces to retain expert technicians. Both of these areas have been problems in recent years.

3. **Built-In Test Equipment (BITE).** Built-In Test Equipment is designed into the system to be tested at the time of its construction and therefore the approach it uses must be designed at the same time as the system itself. Unfortunately, it is usually not possible to forecast accurately all possible types of faults at the time of system design. In addition, BITE is deficient because:

a. Deficiencies in BITE are extremely difficult to correct, since BITE is initialy designed into the system.

b. BITE, in order to identify more than 60% of the faults in a complex system, must be so complex itself that it becomes hard to troubleshoot and maintain.

c. BITE does not provide aids for performing replace and repair functions.

4. Automatic Test Equipment (ATE). Automatic Test Equipment consists of very large, complex, and expensive devices designed to be connected to the system to be tested. ATE is commonly used for troubleshooting and maintenance of military aircraft such as the F-16. ATE is impractical in many maintenance and troubleshooting situations because it is so expensive and because it is so large. This approach is only feasible for depot level maintenance.

5. Technical Manuals of high quality. Such an approach has not proved effective because:

   a. Paper manuals are bulky and hard to handle.

   b. Paper manuals are difficult to update.

   c. Access time is excessive when large numbers of manuals are needed to explain a single system.

   d. Information in this form is usually hard to understand and cannot be designed to meet the needs of different levels of users from novices to experts.

6. Research on the fundamentals of the man-machine interface.

   a. One proposed research solution to the problem has been to study the manner in which expert technicians troubleshoot and maintain complex systems. It was hoped that an increased understanding of expert knowledge would lead to improvements in training techniques for novice technicians. Although much interesting work has been done in this area, no major improvements have taken place in the training of technicians, and certainly no major improvements in weapons system availability have resulted from this research.

   b. A second potential solution is to model complex electro-mechanical systems in computers. It is thought that an improved understanding of how such systems function and how people troubleshoot and maintain such systems will result in improved approaches to troubleshooting and maintenance. Such simulations are based on mathematical models of complex systems. The meters, dials, and other indicators of system functioning are represented as graphics on computer displays.

These computer simulations are used to learn more about how the complex systems represented function and how people maintain and troubleshoot them. While this approach may have value in the very long run, it seems clear that no major improvements in training or maintenance and troubleshooting may be expected to develop in the near term. These complex simulations are extremely expensive to develop and as yet have had little impact on weapons system availability.

c. A third approach is the U.S. Navy sponsored effort to develop a prototype computer-based job aid designed to deliver troubleshooting and maintenance information to sailors at sea. This device, called NOMAD™ (Navy On-board Maintenance Aid Device), provides a structured, automated, diagnostic strategy that prompts and logically leads technicians through appropriate procedures and actions in troubleshooting the Navy's MK-86 fire-control system. The MK 86 fire control system is an extremely complex gunfire control system designed to protect Spruance class destroyers from hostile aircraft and missiles. Although the MK 86 system is extremely effective when operating properly, it has been prone to failure due to a shortage of the experienced technicians required to troubleshoot and maintain it.

This strategy, designed and authored by Navy and Hazeltine Corporation personnel, adapts to the level of expertise of the user, leads him to the fault in the system, and prescribes the required remedial action. Where possible, the system references the appropriate technical documentation rather than duplicating it. NOMAD™ also keeps detailed records of each technician's use of the system during troubleshooting. NOMAD (Navy On-Board Maintenance Aid Device) is a compact version of the TICCIT (Time-shared Interactive Computer-Controlled Information Television) computer system, designed for a shipboard environment and programmed to provide maintenance and troubleshooting information for the ship's technicians.

As we worked with Navy technicians, we came to understand that the problem of delivering the expert's knowledge to the technician is only half of the problem. The other half is that of transferring the knowledge of the expert to the computer. Since we needed to make this transfer effectively, but also rapidly and inexpensively, we came to realize that we needed a software system that we could teach the subject-matter expert to use to input his troubleshooting approach. We also became even more aware of the need to focus on the man-machine interface rather than the hardware package.

There is a great temptation for those working in this area to attempt a hardware solution to this problem, that is, to decide in advance that a computer-based job-aid should be of a certain weight, of a certain size, have a display area of certain parameters, etc. Rather than take this approach, we are systematically focusing on what we consider to be the crucial concerns here. These concerns are all aspects of the man-machine interface. Specifically, a computer-based job-aid should:

1. Make the knowledge of the subject matter expert available to the novice in a form that makes it easy to understand and effective in helping him or her solve maintenance and troubleshooting problems.

2. Utilize a user friendly software system to create the trouble-shooting logic and maintenance procedures.

3. Utilize a user friendly graphics system to create graphics of wave forms, instrument panels, etc.

4. Utilize state-of-the-art instructional design techniques such as hypertext to ensure that the performance of technicians in performing procedures is as near perfect as possible.

The NOMAD program is based on the idea that it is not necessary to provide a deep structure respresentation of the subject-matter expert's knowledge in the computer-based job-aid. All that is required is that the expert make explicit his or her troubleshooting and maintenance approach and then represent that approach in the computer's programming. It is not necessary, either, to attempt to arrive at some objective specification of expertise, since all that is necessary is that a single effective approach be made available to the inexperienced, but school-trained technician. Experts do differ in their conceptualizations of complex systems and in their strategies in troubleshooting such systems. All that is really needed however, is one approach that works.

For the prototype job-aid aboard the USS Kinkaid, we have utilized an existing commercial user-friendly language that we were able to teach one Senior Chief and two sailors in three weeks. This language provides the author with up to four specialized editor packages for each display the technician sees.

The first editor is called a base page upon which text, formatted and colored exactly as it will be presented to the technician, is entered. Here the author simply types the display as the technician should see it.

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The second editor that the author may use is called the display specifications page. Here the author may enter commands used to display additional text when specified conditions have been met or may identify a graphic and give its coordinates for display to the student. This page may also be used to define windows that make use of the light pen possible. The third editor available to the author contains the branch table. This table is used to define branching by special purpose keys on the technician's keyboard. These keys allow the technician to branch to any other display in the program, as specified or limited by author.

The fourth editor available to authors is the response analysis page. This page is used to specify how the computer should respond to technician input, whether it takes the form of a touch of the light pen, typed text, an algebraic expression, or any other response. It also allows the author to compute, display, or store any variables needed for simulations or other conditional functions.

The base page editor is used to create all display pages: the additional editors are used when required, and to the extent required, to implement branching, response analysis, simulations, special record keeping, and other functions.

Another characteristic of the NOMAD program has been the use of a commercially available graphics editing software package. NOMAD graphics were put on line with a Hamamatsu document camera that allows graphics drawn by illustrators or found in Navy technical manuals to be scanned into the computer system in about two minutes. These graphics are then edited using an on-line graphics editor package. Graphics are colored, rotated, expanded, or reduced, as required.

The graphics editor can also be used to create unique symbols or characters, which can be assigned to keys on the keyboard and stored for subsequent use. Such graphics are displayed instantaneously as one image rather than drawn slowly as the technician watches. In situations that require the use of complex graphics, this high-speed graphics display capability is critical to clarifying complex technical text. In addition, the ease with which one can construct graphics makes it possible to staff an effort like the NOMAD program with inexperienced personnel such as entry-level enlisted people.

Approach

Basic research conducted by Stone, et al. (1981, 1982a, 1982b) concerning the design of procedural texts and graphics has led to the development of a computer-based job-aiding technique called hypertext. Hypertext (which includes both text and graphics) is a sophisticated indexing technique which has been utilized by Stone as a means of exploring the cognitive structures and processes which come into play as a person reads and follows procedural text and graphics while working on a task. (In Stone's research he has used a mechanical assembly task.)

Hypertext consists of a surface text, written in simple language, that conveys the instructions for the performance of a task. The organization of the text is designed to make clear each step in the procedure and each of the components of each step. For example, Stone and Glock (1981) used instructions that look like this:

1. To form column one:

    a. Assemble three large blocks end to end

    b. Attach a small block to the tab end of the column thus formed.

In a hypertext format, however, each word in the above sentence can be marked by the reader causing an instantaneous branch to a new display designed to make the meaning of the word marked unmistakably clear. Such displays contain additional text and color graphics which illustrate the meaning of the word used in the surface text. Multiple layers of hypertext are possible. Stone and McMinn (1982) describe the use of a small colored box on each page of the surface text. These boxes can be marked by the reader and a graphic of the completed mechanical assembly is displayed. This graphic can also be marked to obtain exploded views of any portion of the assembly. Thus, the reader can explore in a purely visual mode all aspects of the assembly that must be performed. This option is available on all pages of the surface text.

The theoretical approach taken in this basic research is based on Neisser's (1976) recursive process model of schema search and modification and included a structural and analysis of the semantic content of text and graphics based on Frederiksen's (1975) system for the analysis of the logical and semantic content of text.

Stone and Crandell (1982) view a problem in comprehension as being comprised of three sets of factors (text/illustration, task, and reader) and their interactions. These sets of factors operate and interact within a given context, which may, in fact, consist of several different kinds of contexts (psychosocial, social-economic, instructional, etc.) each having somewhat different kinds of effects.

Each set of factors includes many specific variables. Within each set the specific variables can be grouped in terms of characteristics, a reader's knowledge about those characteristics, his or her metaknowledge (awareness of his or her own knowledge) about those characteristics, and their application in a reading task. The characteristics, knowledge, and metaknowledge have effects only as they are actually brought to bear upon a task.

The power of the modern computer system to record and analyze such interactions led us to develop a set of procedural instructions in the form of color text and graphics for presentation on the TICCIT computer system. The computer program designed to deliver these instructions also was designed to track each subject's interactions with the instructions. (A description of the experiment is provided in ONR Technical Report No. 14, Department of Education, Stone Hall, Cornell University, Ithaca, New York, in press.

The design of the computer program used by Stone to deliver the procedural text and graphics incorporated the concept of hypertext. This concept has been discussed in the literature for many years, but has not been implemented for either research or instructional applications due to the limitations of most CBI sytems in rapidly displaying color graphics. The TICCIT system does not have this problem and therefore hypertext could be implemented for Stone's research.

In addition to the theoretical questions addressed in Stone's research, the effectiveness of hypertext in communicating procedural information was also of interest. One of the most interesting findings, therefore, of Stone's research has been the discovery that when subjects can use hypertext to ask for the information they need to complete a mechanical assembly task their errors in completing that task almost completely disappear. This finding has great significance for the design of computer-based job-aiding programs for military tasks where errors can result in loss of life and/or expensive equipment.

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The objective of this project was to begin with the basic theoretical work done by Stone and demonstrate that it can be applied to existing Army technical documentation resulting in an easy to understand and easy to use technical information support system.

The technical documentation for this computer program was supplied by the Army Research Institute and consisted of the antenna maintenance procedure for the M-1 Tank. All graphics and text used in the computer program were taken from these printed materials. Graphics were digitized by a modified document camera and then colored and modified as required using TICCIT's graphics editor. All text was entered and all branching done using TICCIT's TAL language.

Attachment A contains the original M-1 Tank technical documentation for the antenna maintenance procedure. Attachment B contains a printout of the graphics used in the computer program. Attachment C contains a printout of the actual computer program. Attachment D contains a printout of the screen images presented to students viewing the program.

Use of the Job Aid

The TICCIT system used for this demonstration program requires that all users be registered for whatever material that they will have access to. From the technician's point of view, however, all this means is that he or she will be given a four letter password (which he or she can later change), an identification number (usually SSN) and the number of the file where the technical data is stored. Every time the technician uses TICCIT he or she must log on with the password, the identification number and the number of the file he or she will be using. He or she is then branched to the material of interest.

For this demonstration program, the first presentation to the technician is the graphic shown on page 1 of Attachment D. From this point the technical uses the light pen and not the keyboard to interact with the program. On the second page of Attachment D the technician is presented with a scenario calling for the replacement of the angle bracket in one of the tank's antennas. Three options are provided with the scenario. The first option is to select general maintenance instructions. These instructions provide general information, including warnings, about how to work on the tank's electrical components. (Attachment D, page 4) The second option provides equipment conditions. This option tells the reader what to do to the tank to get it ready for work on the antennas (Attachment D, page 17). The third option is the task menu. This option lists all the tasks that are associated with M-1 Tank antenna maintenance procedures.

The M-1 Antenna Maintenance Procedure Task Menu, shown on the third page of Attachment D, allows the reader to select the appropriate task based on the conditions in the scenario. Because this scenario calls for the replacement of the angle bracket, Task 3 is the appropriate choice (shown as Attachment D, page 29).From the Task 3 Menu the user can select:

1. General Instructions (As described above)
2. Tools and Supplies   (Attachment D, page 42)
3. Preliminary Procedures (Attachment D, page 47)

Other options allow the user to touch the box in the upper left corner of the display, or the two boxes labeled "ground strap" and "angle bracket", respectively, or to touch the BACK or NEXT boxes. The box at the upper left makes available a series of graphics locating the antennas and then presenting successive blow-ups of parts of the antennas (Attachement D, page 58).

The box just to the left of the words "angle bracket" accesses the first page of the angle bracket replacement procedure . BACK returns the user to the Task Menu. NEXT accesses the first page of the ground strap removal procedure (as does the box labeled "ground strap"). Attachment D, page 31 presents the angle bracket replacement procedure display. Certain words on this display lead to other displays with text and graphics designed to make the meaning of the surface text explicit. The box in the upper left corner of the display functions in the same manner as the box located series of "exploded view" graphics of the tank and its antenna assemblies can be accessed.

The technician, therefore, can access a wide range of display formats as required to perform the required procedures. The advantage of this flexibility, as indicated by our prior research, is that the performance of such tasks is radically improved by allowing the technician the freedom to manipulate the technical information into the configuration most appropriate for his or her information requirements at any given moment.

The ability to offer individual users a wide range of information formats and to provide detailed textual and graphic information on an "as needed" basis makes computer-based technical information systems desirable as job-aids as well as training devices. Our research indicates that such an approach overcomes the problems of managing the large technical data base required and that the presentation of technical information to users in a highly adaptive format has a significant impact on their ability to perform actual mechanical assembly tasks.

Theoretical Implications.

Reading a technical text with graphics can be viewed as a function of reader, text, task, and context characteristics and their interaction. Each of

these "bundles" of variables includes many specific variables. (Stone and Crandell, 1982) For example, reader characteristics might include age, schema availability, strategy repertoire, prior experience and training, and motivational state. Text characteristics might include the ideational content and structure, format and mode. Task characteristics might include the purpose for reading a given text (general background, specific information location, directions for immediate procedures, etc.), stimulus and response modes, feedback conditions, and criteria. Context characteristics include such aspects of the immediate task situation, as number of trials and instructions.

In any given situation, only a subset of these variables or bundles of variables are likely to be of interest, but a shift in one variable or the levels of expression of that variable may bring a second variable (previously a weak background variable of little interest) into sharp focus as a potent influence on response. For instance, if the task is to read a familiar narrative structure about personal relationships and to answer comprehension questions, illustrations and their relationship to verbal text may exert little influence on response. If, however, the task is to read and follow directions such as, for repairing a jet engine, the technical illustrations and their relationship to the verbal text are likely to be critical. Although question answering might still be an interesting response variable, processes and success on the work task may also be of interest.

This research was designed to explore the application of the concept of hypertext to the design of M-1 Tank technical data. We believe that the demonstration program we have produced represents a major contribution to the design of future computer-based technical information systems.

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5-10. Antennas: Receiver-Transmitter and Auxiliary Receiver

Task	Title	Frames
1	Remove Receiver-Transmitter Antenna Base	1
2	Remove Receiver Antenna Base	2
3	Replace Antenna Ground Strap or Angle Bracket	3 - 5
4	Install Receiver Antenna Base	6
5	Install Receiver-Transmitter Antenna Base	7

TASK 1. Remove Receiver-Transmitter Antenna Base

Applicability: All Models

Common Tools:
    Bar, pry
    Handle, socket wrench, ratchet, 3/8-inch square drive
    Pliers, slip joint, conduit style with plastic jaw inserts
    Screwdriver, flat tip
    Socket, socket wrench, 3/8-inch square drive, 9/16-inch

Special Tools: None

Supplies:
    NOTE: Expendable supplies are defined in appendix A.
    Pencil
    Protective caps and plugs (bulk)
    Tag, marker (as required)

Personnel: One

Equipment Condition:
- Tank parked.
- Parking brake set.
- VEHICLE MASTER POWER switch set to OFF.
- Transmission shift control set to N.

Preliminary Procedure:
    Remove receiver-transmitter antenna; refer to TM 9-2350-255-10.

FRAME 1

Remove Antenna Base:

NOTE

Read para. 5-4, on removing connectors, before doing any work.

1. Unscrew and take out four screws (1) and washers (2) from receiver-transmitter antenna base (3) with socket and handle.

2. Lift base (3) off mount (4) gently with pry bar just far enough to reach two harness connectors (5).

3. Unscrew and take off two connectors (5).

4. Unscrew and take off screw (6), two lockwashers (7), and ground strap (8) from standoff (9) with screwdriver. Get rid of lockwashers (7).

5. Take off base (3) and gasket (10). Get rid of gasket (10).

6. Look at base (3) for cracks or breaks. If bad turn in. If OK set aside for later use.

Follow-on Maintenance:
    NOTE: To install receiver-transmitter antenna base, refer to task 5.

TASK 1 ENDS HERE
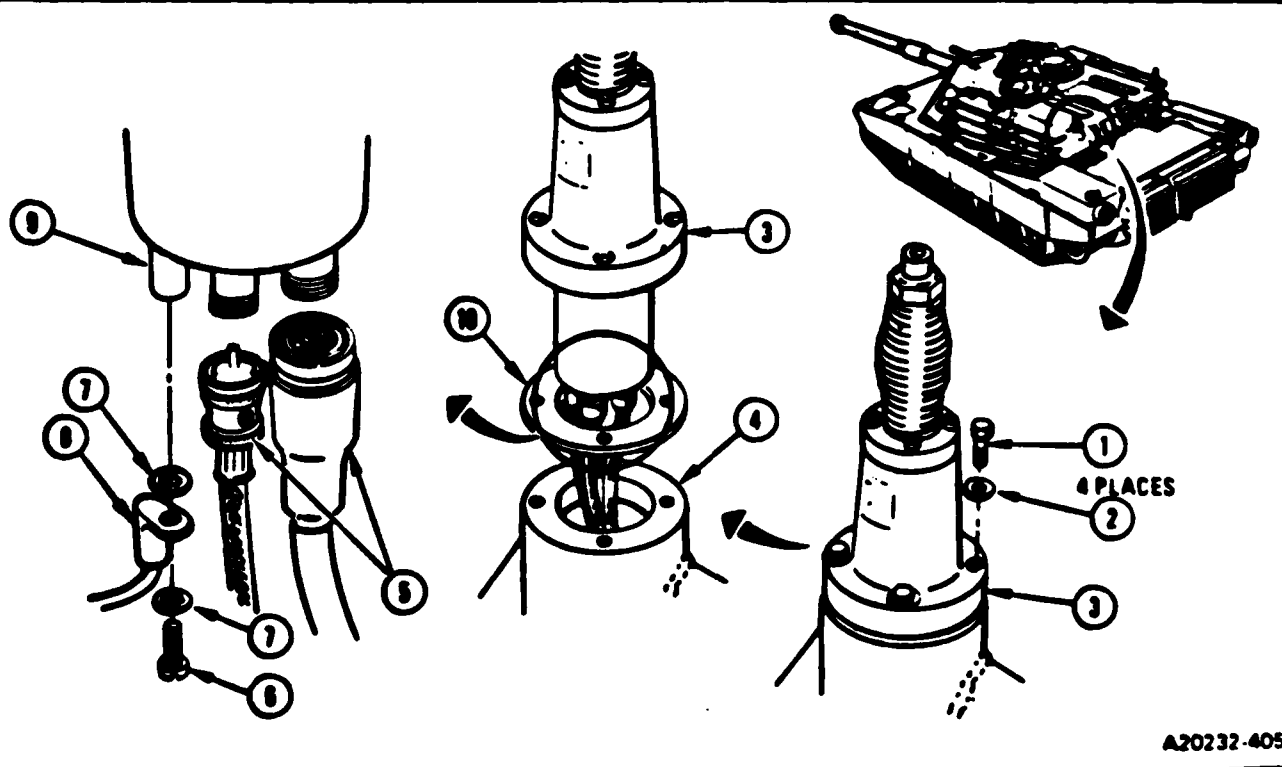
A20232-405

TASK 2. Remove Receiver Antenna Base

Applicability: All Models

Common Tools:
Bar, pry
Handle, socket wrench, ratchet, 3/8-inch square drive
Pliers, slip joint
Socket, socket wrench, 3/8-inch square drive, 9/16-inch

Special Tools: None

Supplies:
Protective caps and plugs (bulk)

Personnel: One

Equipment Condition:
- Tank parked.
- Parking brake set.
- VEHICLE MASTER POWER switch set to OFF.
- Transmission shift control set to N.

Preliminary Procedure:
Remove receiver antenna, refer to TM 9-2350-255-10.

FRAME 2

Remove Antenna Base:

NOTE

Read para. 5-4, on removing connectors, before doing any work

1. Unscrew and take out four screws (1) and washers (2) from receiver antenna base (3) with socket and handle.

2. Lift base (3) off mount (4) gently with pry bar just far enough to reach harness connector (5). Unscrew and take off connector (5).

3. Unscrew clamp thumbscrew (6) of ground strap (7) with pliers. Take off strap (7).

4. Take off base (3) and gasket (8). Get rid of gasket (8).

5. Look at base (3) for cracks or breaks. If bad turn in. If OK set aside for later use.

Follow-on Maintenance:
    NOTE: To install receiver antenna base, refer to task 4.

TASK 2 ENDS HERE
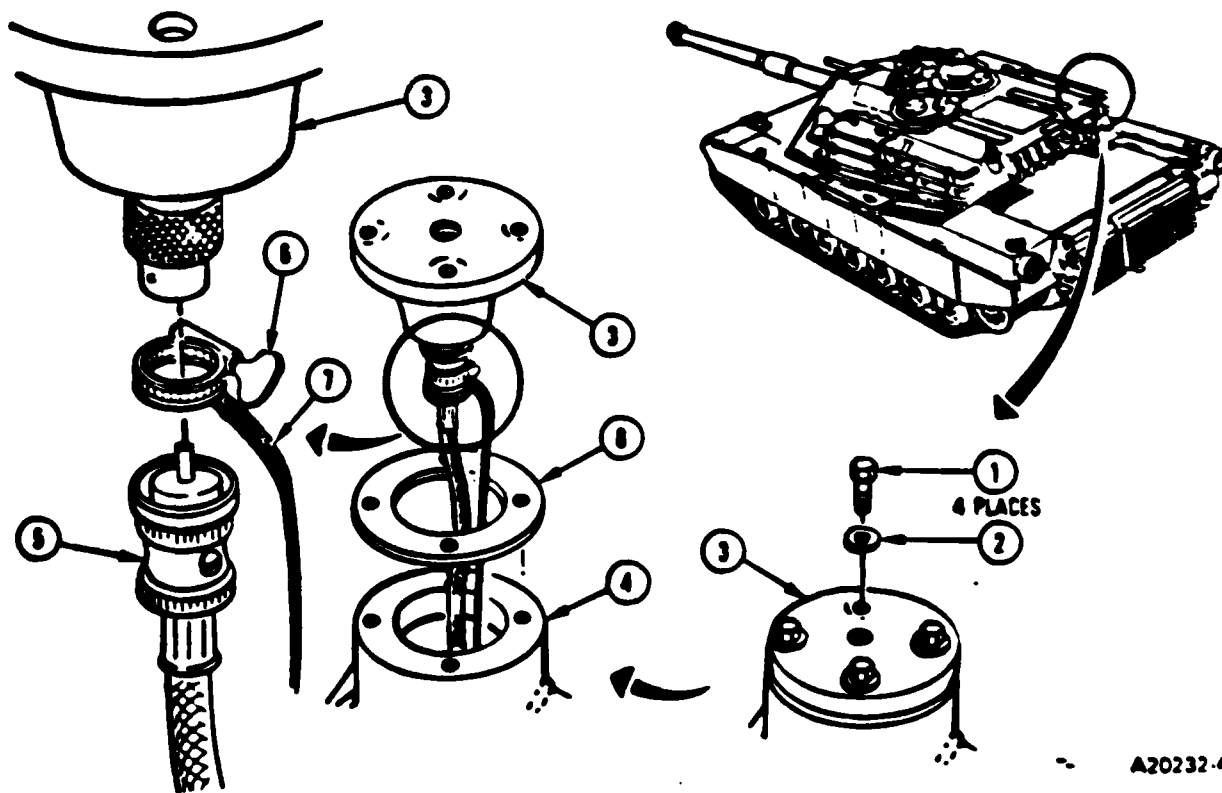
A20232-406

TASK 3. Replace Antenna Ground Strap or Angle Bracket

Applicability: All Models

Common Tools:
    Adapter, socket wrench, 3/8-inch square drive to 1/4-inch square drive
    Extension, socket wrench, 3/8-inch square drive, 12-inch
    Handle, socket wrench, ratchet, 3/8-inch square drive
    Socket, socket wrench, 3/8-inch square drive, 5/16-inch

Special Tools: None

Supplies:
    NOTE: Expendable supplies are defined in appendix A.
    To replace ground strap, you will need:
        Lockwasher (two required)
        Strap, ground

    To replace angle bracket, you will need:
        Bracket, angle
        Lockwasher (two required)

Personnel: One

Equipment Condition:
- Tank parked.
- Parking brake set.
- VEHICLE MASTER POWER switch set to OFF.
- Transmission shift control set to N.

Preliminary Procedures:
    To remove receiver-transmitter antenna ground strap or angle bracket do the following:
      1. Remove receiver-transmitter antenna; refer to TM 9-2350-255-10.
      2. Remove receiver-transmitter antenna base; refer to task 1.

    To remove receiver antenna ground strap or angle bracket, do the following:
      1. Remove receiver antenna; refer to TM 9-2350-255-10.
      2. Remove receiver antenna base; refer to task 2.

FRAME 3

Remove Ground Strap or Bracket:

NOTE

- Read para. 5-4, on replacing electrical wiring or components, before doing any work.

- Do this task to replace bad parts in either the receiver antenna base or the receiver-transmitter antenna base.

- To replace ground strap (1), do this frame.

- To replace angle bracket (2), do frame 4.

1. Unscrew and take out screw (3), two lockwashers (4), and antenna ground strap (1) from flange (5) with socket, adapter, extension, and handle. Get rid of lockwashers (4).

2. Turn in bad ground strap (1).

Install Ground Strap:

3. Put one new lockwasher (4) on each side of new ground strap (1). Line up hole in ground strap (1) with hole in flange (5).

4. Screw in and tighten screw (3) with socket, adapter, extension, and handle.

GO TO FRAME 4
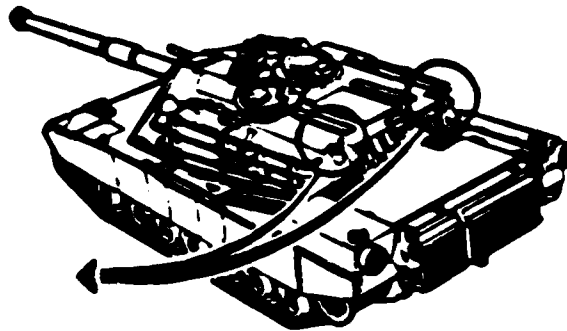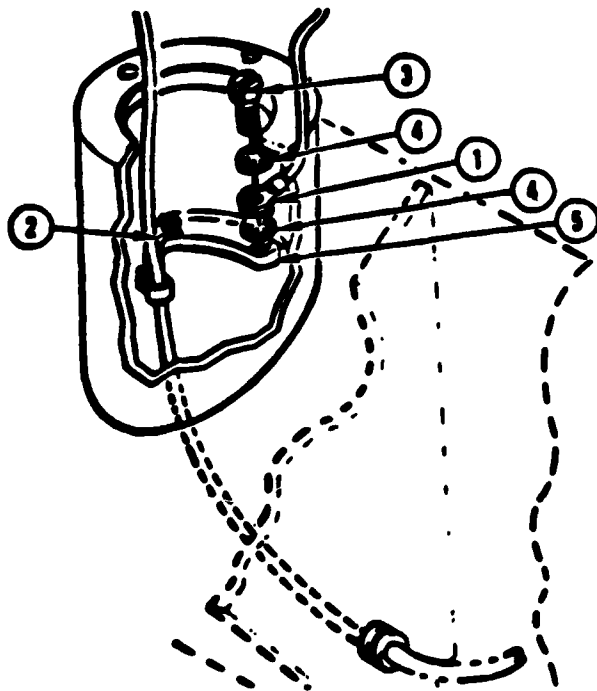
A20232-407

FRAME 4

Remove Angle Bracket:

1. Unscrew and take out screw (1) and lockwasher (2) from angle bracket (3) and flange (4) with socket, adapter, extension, and handle. Get rid of lockwasher (2).

2. Slide loop clamp (5) with bracket (3) up harness (6) to reach screw (7). Unscrew and take out screw (7) and lockwasher (8) from clamp (5) and bracket (3) with socket, adapter, extension, and handle. Get rid of lockwasher (8).

3. Turn in bracket (3). Look at clamp (5) for cracks or breaks. If bad turn in. If OK leave clamp (5) on harness (6).

Install Angle Bracket:

4. Line up bottom hole in new bracket (3) with hole in clamp (5). Screw in screw (7) and new lockwasher (8).

5. Slide clamp (5) with bracket (3) halfway down harness (6). Tighten screw (7) with socket, adapter, extension, and handle.

6. Line up top hole in bracket (3) with hole in flange (4). Screw in and tighten screw (1) and new lockwasher (2) with socket, adapter, extension, and handle.

GO TO FRAME 5
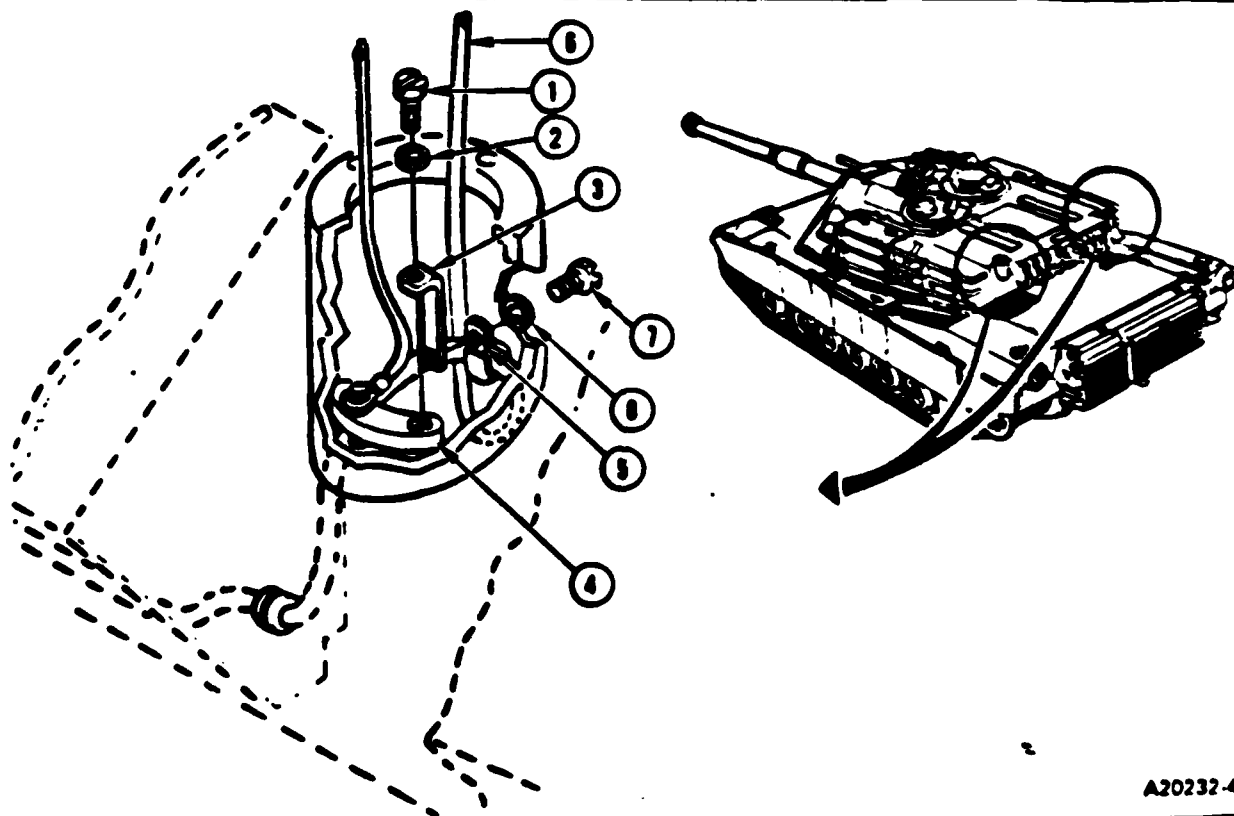
A20232-409

FRAME 5

Follow-on Maintenance:

For receiver-transmitter antenna ground strap or angle bracket, do the following:
1. Install receiver-transmitter antenna base, refer to task 5.
2. Install receiver-transmitter antenna, refer to TM 9-2350-255-10.
3. Check operation of receiver-transmitter system, refer to TM 9-2350-255-10.

For receiver antenna ground strap or angle bracket, do the following:
1. Install receiver antenna base, refer to task 4.
2. Install receiver antenna, refer to TM 9-2350-255-10.
3. Check operation of auxiliary receiver system, refer to TM 9-2350-255-10.

TASK 3 ENDS HERE

TASK 4. Install Receiver Antenna Base

Applicability: All Models

Common Tools:
Handle, socket wrench, ratchet, 3/8-inch square drive
Oiler, hand
Pliers, slip joint
Socket, socket wrench, 3/8-inch square drive, 9/16-inch
Wrench, torque, 0 to 120 inch-pounds

Special Tools: None

Supplies:
NOTE: Expendable supplies are defined in appendix A.
Gasket
Lubricating Oil, MIL-L-2104C

Personnel: One

Equipment Condition:
- Tank parked.
- Parking brake set.
- VEHICLE MASTER POWER switch set to OFF.
- Transmission shift control set to N.

Preliminary Procedure:
Remove receiver antenna base; refer to task 2.

FRAME 6

Install Antenna Base:

NOTE

Read para. 5-4, on installing connectors and electrical
wiring, before doing any work.

1. Put new gasket (1) on antenna mount (2).

2. Put thumbscrew clamp (3) of ground strap (4) on antenna base connector (5). Tighten thumbscrew (6) with pliers.

3. Screw on and tighten harness connector (7) to connector (5).

4. Put a light coat of oil on threads of four screws (8).

5. Screw in four screws (8) and washers (9) with socket and handle. Torque screws (8) between 80 and 100 pound inches (9 and 11 Newton meters) with socket and torque wrench.

Follow-on Maintenance:
1. Install receiver antenna; refer to TM 9-2350-255-10.
2. Check operation of auxiliary receiver system; refer to TM 9-2350-255-10.

TASK 4 ENDS HERE
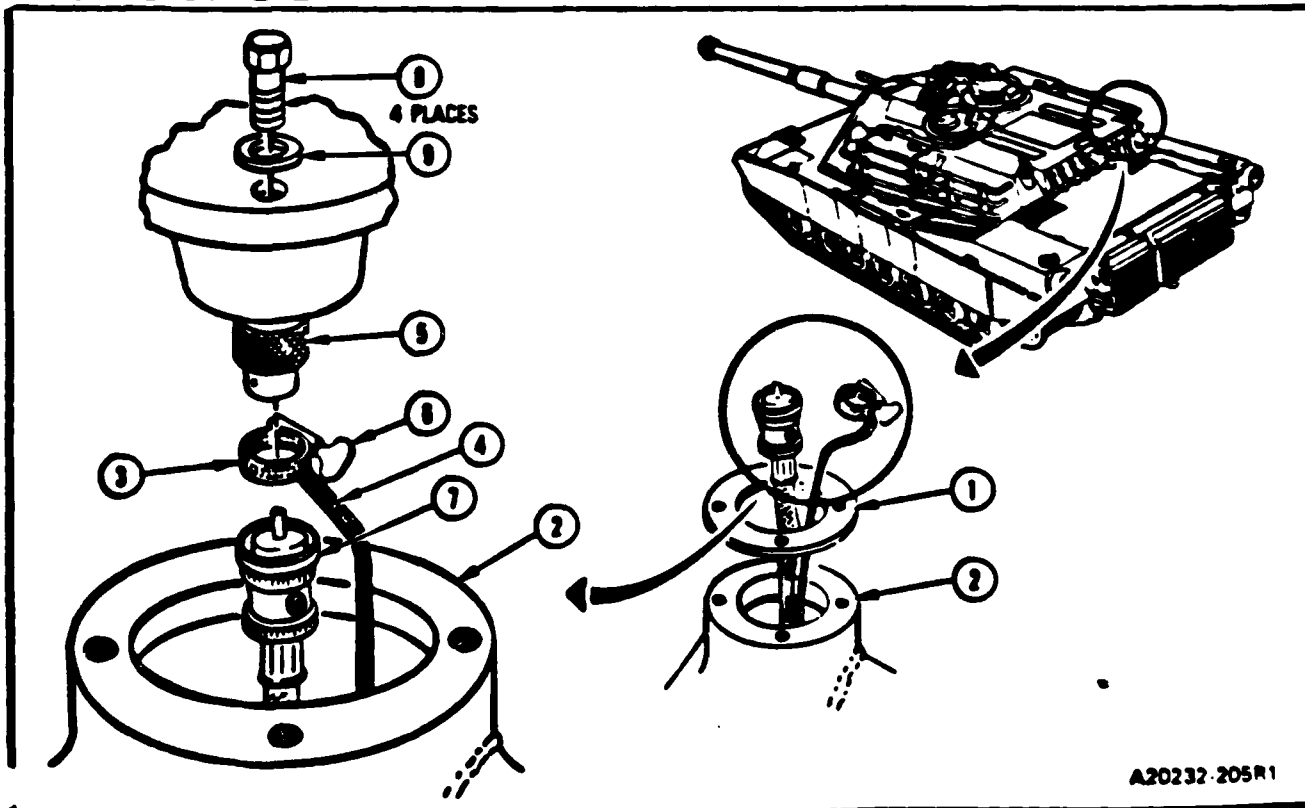
4 PLACES

A20232-205R1

FRAME 6

TASK 5. Install Receiver-Transmitter Antenna Base

Applicability: All Models

Common Tools:
Handle, socket wrench, ratchet, 3/8-inch square drive
Screwdriver, flat tip
Socket, socket wrench, 3/8-inch square drive, 9/16-inch
Wrench, torque, 0 to 120 inch-pounds
Oiler, hand

Special Tools: None

Supplies:
NOTE: Expendable supplies are defined in appendix A.
Gasket
Lockwasher (two required)
Lubricating Oil, MIL-L-2104C

Personnel: One

Equipment Condition:
- Tank parked.
- Parking brake set.
- VEHICLE MASTER POWER switch set to OFF.
- Transmission shift control set to N.

Preliminary Procedure:
Remove receiver-transmitter antenna base; refer to task 1.

FRAME 7

Install Antenna Base:

NOTE

Read para. 5-4, on installing connectors and electrical wiring, before doing any work.

1. Put new gasket (1) on antenna mount (2).

2. Screw on and tighten two harness connectors (3) to connectors (4) of receiver-transmitter antenna base (5).

3. Screw in and tighten screw (6), ground strap (7), and two new lockwashers (8) on standoff (9) with screwdriver.

4. Lower base (5) on mount (2). Check that connectors (3) are away from flange (10) and that holes of base (5) are lined up with holes of mount (2).

5. Put a light coat of oil on threads of four screws (11).

6. Screw in four screws (11) and washers (12) with socket and handle. Torque screws (11) between 80 and 100 pound inches (9 and 11 Newton meters) with socket and torque wrench.

Follow-on Maintenance:
1. Install receiver-transmitter antenna; refer to TM 9-2350-255-10.
2. Check operation of receiver-transmitter system; refer to TM 9-2350-255-10.

END OF ANTENNAS: RECEIVER-TRANSMITTER AND AUXILIARY RECEIVER MAINTENANCE

A20232-410
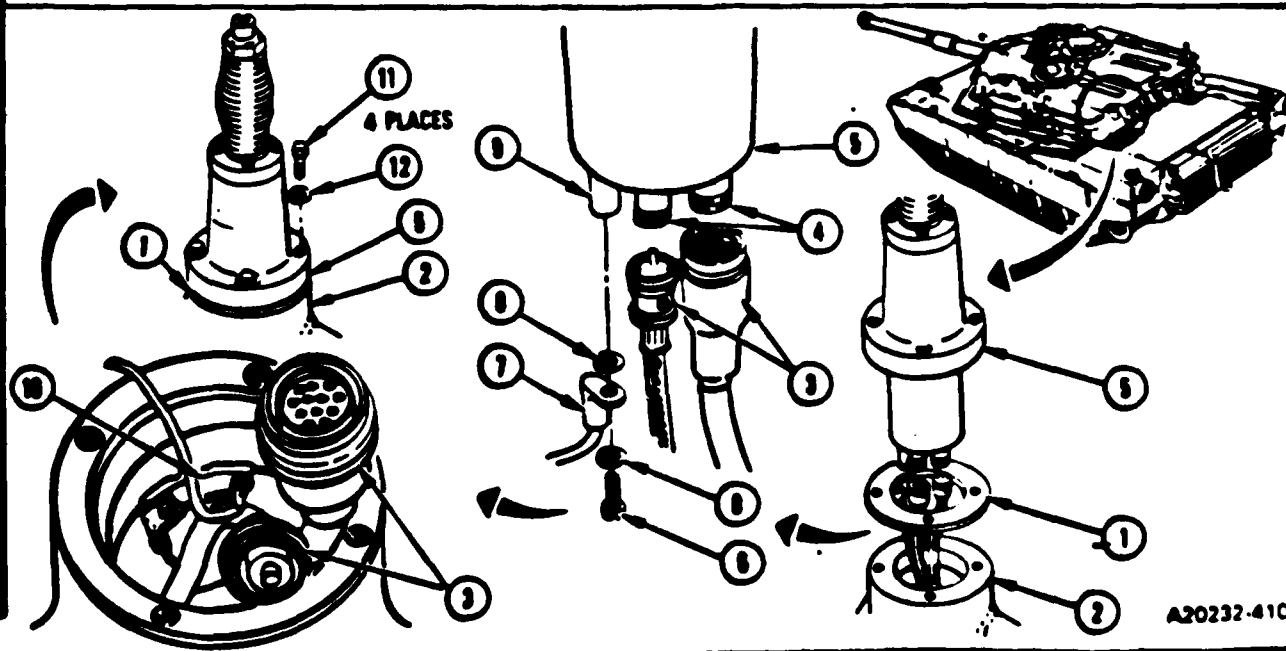
CHAPTER 5

COMMUNICATION MAINTENANCE

5-1. General. This chapter tells you how to fix the M1 turret communications system. The chapter is divided into paragraphs and then into tasks. Each task explains how to take a part off the tank and then put it back on the tank. Any bad parts are replaced with good parts.

5-2. Equipment Items Covered. Each paragraph, starting with paragraph 5-5, lists the tasks that take parts off or put them back on the tank. The equipment items covered in this chapter are listed in table 5-1 with their paragraphs and page numbers.

Table 5-1. Equipment Items Covered

5-3. Equipment Items Not Covered. None

5-4. General Maintenance Instructions. Follow these maintenance practices when working on communications equipment. Be sure to observe all warnings at the front of this manual.

CAUTION

Before putting on or taking off radio equipment, make sure VEHICLE MASTER POWER switch is set to OFF. Turn off POWER switches of receiver-transmitter and auxiliary receiver. Failure to do so may damage equipment.

a. Care of Equipment.

(1) Put covers on antennas and communication equipment when equipment is shut down during low temperature operation. This keeps ice and frost off equipment.

5-4. General Maintenance Instructions (Continued)

a. Care of Equipment (Continued):

(2) Keep equipment wiped clean in desert and dusty conditions. Make sure that sand or dust does not gather on intake cooling vents where it can get inside equipment.

(3) Wipe up any wet or damp places. Take steps to keep water out of turret.

b. Cleaning Electrical Components.

WARNING

Solvent can irritate skin and can give off harmful vapors. To avoid injury, keep solvent away from heat, wear protective clothing, and use in a well-ventilated area.

(1) Clean off oil, grease, and dirt from cable harnesses, ports, and connectors, with solvent and brush or lint-free cloth. Be sure to clean dirt from connectors and cover clean parts with dust caps, plugs, or lint-free cloths.

(2) Rub corrosion off connector contacts and other parts with a pencil eraser. Remove rust by scraping, wire brushing, or both. If rust damage is too great, or on small thin parts that would be weakened by rust, you may need to replace the part. Find the cause of the rust and correct the problem.

WARNING

Cleaning compound can cause skin rash and can give off harmful vapors. To avoid injury, use in a well-ventilated area. Wash immediately with soap and water if compound gets on skin or clothing.

(3) Threaded holes in metal must be thoroughly clean when sealing compounds are used to lock screws in place. Take off old preservative or sealing compounds from threads with tap and tap wrench. Blow loose particles out of holes with compressed air, then clean threads with solvent cleaning compound MIL-C-81302 and brush. Let holes dry before putting in screws.

(4) Check intake cooling vents and screens and exhaust ducts for anything that will block the flow of air. Clean intake vents and screens to keep dirt from getting inside equipment.

c. Tagging Electrical Parts.

(1) Tag all harnesses, wires, and connectors for identification and location any time one is lifted out of position. Tagging saves time and helps avoid mistakes. Tag any parts before they are taken apart for repairs. Remove tags after parts are put back together.

5-4. General Maintenance Instructions (Continued)

d. Replacing Electrical Wiring or Components.

(1) Always look carefully at equipment for likely signs of trouble while doing routine work. Tie down any harness that is free to move and rub against metal. If you look for possible troublespots and make repairs at once, you can cut down on repair time and extra work. Replace any harness or harness wires that have splits, tears, or worn spots. If troubleshooting isolates a broken harness, replace that harness.

(2) Do not put a trouble light within 2 inches of a fire sensor. A trouble light too near a fire sensor can cause fire extinguishers to discharge.

(3) Replace broken or torn instrument or gage lenses, rubber eye cups, headrests, and other parts.

(4) Replace any damaged or crossthreaded screws and nuts. Check for torn or stretched gaskets and leaks.

(5) Replace any burned out lamps or fuses. If you cannot replace a lamp or fuse right away, tag it and go back to it later.

(6) Tighten all loose parts. Use correct torque valves when tightening screws and nuts. Straighten bent parts where possible and check for cracks. Replace all missing parts.

(7) Make sure that ground points in electrical system are kept clean, free of corrosion, and tight.

(8) Check mountings, parts, and shafts for proper electrical connection and alignment.

e. Removing or Installing Connectors.

(1) If connectors cannot be removed by hand, use slip joint conduit style pliers with plastic jaw inserts to loosen them. Finish removal by hand. Straighten any bent contacts with long round nose pliers. When installing connectors on larger harnesses, another soldier will be needed to help align the mating ends of the cable. Make sure that contacts and keyways line up. Tighten twist-snap-type connectors until a click is heard. Tighten screw-on-type connectors until the ratchet noise is heard to indicate that connectors are tight.

(2) Put a protective cap or cover over any electrical connector that is left uncovered. Cover connectors on any items being moved to or from the tank. Take off covers when connectors are put back.

5-4. General Maintenance Instructions (Continued)

    a. **Removing or Installing Connectors (Continued):**

        (3) Look at connectors for broken, missing, or pushed in contacts before making any connections. If a connector is bad notify support maintenance.

        (4) Tighten connectors by hand whenever tools are not called out.

SGLIST0011.LS   DIRECTORY = SGRAPHICS.DR   LOCATION = aa.6.1.1   08/18/82   10:36   SORTED BY: SOURCE GRAPHIC NAME

GRAPHIC NAME	FILE NAME	FILE SIZE	WINDOW SHAPE	LEVEL/ MODE	OBJECT GRAPHIC #	LINK REFERENCE FILE DATE	FILE TIME	LINK RESOLUTION
AA.6.1.1.S/1	AA611G0100	17098	1	1,16 43	1/0	460000 (7)	08/02/82	10:04	
AA.6.1.1.S/2	AA611G0200	11242	1	1,16 27	0/0	460009 (7)	08/03/82	11:45	
AA.6.1.1.S/3	AA611G0300	12074	1	1,16 29	0/0	459994 (7)	08/04/82	10:28	
AA.6.1.1.S/4	AA611G0400	16650	1	1,16 40	0/0	460010 (7)	08/03/82	11:45	
AA.6.1.1.S/5	AA611G0500	10566	1	1,14 29	0/0	460011 (7)	08/03/82	15:46	
AA.6.1.1.S/6	AA611G0600	12490	1	1,16 30	0/0	460012 (7)	08/03/82	15:46	
AA.6.1.1.S/7	AA611G0700	14570	1	1,16 35	0/0	460013 (7)	08/03/82	15:46	
AA.6.1.1.S/8	AA611G0800	17098	1	1,16 43	0/0	460014 (7)	08/03/82	15:36	
AA.6.1.1.S/9	AA611G0900	16650	1	2,16 41	0/0	460015 (7)	08/03/82	15:46	
AA.6.1.1.S/10	AA611G1000	13730	1	6,16 30	0/0	460020 (7)	08/03/82	15:50	
AA.6.1.1.S/11	AA611G1100	15818	1	1,16 30	0/0	460016 (7)	08/04/82	09:10	
AA.6.1.1.S/12	AA611G1200	12074	1	1,16 29	0/0	460017 (7)	08/04/82	09:59	
AA.6.1.1.S/14	AA611G1400	17898	1	1,16 43	0/0	460018 (7)	08/03/82	17:25	
AA.6.1.1.S/16	AA611G1600	17898	1	1,16 43	0/0	460019 (7)	07/31/82	20:12	
AA.6.1.1.S/21	AA611G2100	17898	1	1,16 43	1/0	460021 (7)	08/04/82	10:00	
AA.6.1.1.S/22	AA611G2200	11658	1	2,16 29	1/0	460025 (7)	08/05/82	12:54	
AA.6.1.1.S/23	AA611G2300	12074	1	1,16 29	1/0	460026 (7)	08/04/82	11:09	
AA.6.1.1.S/24	AA611G2400	16650	1	1,16 40	1/0	460034 (7)	08/04/82	11:44	
AA.6.1.1.S/25	AA611G2500	10566	1	1,14 29	1/0	460035 (7)	08/04/82	13:19	
AA.6.1.1.S/26	AA611G2600	12490	1	1,16 30	1/0	460036 (7)	08/04/82	14:02	
AA.6.1.1.S/27	AA611G2700	14570	1	1,16 36	1/0	460038 (7)	08/04/82	14:16	
AA.6.1.1.S/28	AA611G2800	17898	1	1,16 43	1/0	460039 (7)	08/04/82	14:20	
AA.6.1.1.S/29	AA611G2900	16650	1	2,16 41	1/0	460041 (7)	08/04/82	14:55	
AA.6.1.1.S/30	AA611G3000	13730	1	6,16 38	1/0	460040 (7)	08/04/82	14:54	
AA.6.1.1.S/31	AA611G3100	15818	1	1,16 38	1/0	460043 (7)	08/04/82	15:24	
AA.6.1.1.S/32	AA611G3200	12074	1	1,16 29	1/0	460044 (7)	08/05/82	14:23	
AA.6.1.1.S/34	AA611G3400	17898	1	1,16 43	1/0	460042 (7)	08/04/82	15:24	
AA.6.1.1.S/40	AA611G4000	7290	1	1,10 28	0/0	460027 (7)	08/03/82	15:53	
AA.6.1.1.S/41	AA611G4100	17898	1	1,16 43	0/0	460033 (7)	08/04/82	10:00	
AA.6.1.1.S/51	AA611G5100	14544	2	1,14 43	1/0	460024 (7)	08/04/82	08:38	
AA.6.1.1.S/60	AA611G6000	17898	1	1,16 43	1/0	460028 (7)	08/03/82	16:27	
AA.6.1.1.S/62	AA611G6200	16650	1	1,16 40	1/0	460047 (7)	08/05/82	15:17	
AA.6.1.1.S/64	AA611G6400	16650	1	1,16 40	1/0	460046 (7)	08/05/82	15:16	
AA.6.1.1.S/80	AA611G8000	11190	1	1,10 43	0/0	460037 (7)	08/04/82	14:11	
AA.6.1.1.S/82	AA611G8200	11658	1	2,16 29	1/0	460048 (7)	08/05/82	15:44	
AA.6.1.1.S/88	AA611G8800	12308	1	1,11 43	1/0	460045 (7)	08/04/82	15:50	

M.6.1.1.S/1

AA.6.1.1.S/2

SCREW

WASHER
(4 PLACES)

BASE

BASE

MOUNT

GASKET

AA.6.1.1.S/3

AA.6.1.1.S/4

CONNECTORS

LOCKWASHER

STANDOFF

LOCKWASHER

GROUNDSTRAP

SCREW

AA.6.1.1.5/5

WASHER

SCREW

BASE

BASE

MOUNT

GASKET

AA.6.1.1.5/6

AA.6.1.1.5/7

BASE

THUMBSCREW

GROUNDSTRAP

CONNECTOR

AA.6.1.1.S/8

SCREW
LOCKWASHER
GROUND STRAPS
FLANGE
FLANGE
ANGLE BRACKET

AA.6.1.1.S/9

HARNESS

SCREW

LOCKWASHER

SCREW

LOCKWASHER

CLAMP

FLANGE

ANGLE
BRACKET

GASKET

MOUNT

AA.6.1.1.S/18

AA.6.1.1.S/11

SCREW

CONNECTOR

THUMBSCREW

GROUNDSTRAP

MOUNT

WASHER

CLAMP

CONNECTOR

AA.6.1.1.S/12

BASE

GASKET

MOUNT

M.6.1.1.S/14

CONNECTORS

FLANGE

M.6.1.1.5/16

MAIN ANTENNA MAINTENANCE PROCEDURE

AA.6.1.1.5/21

AA.6.1.1.5/22

SCREW

WASHER
(4 PLACES)

BASE

M.6.1.1.S/23

BASE

MOUNT

GASKET

AA.6.1.1.5/24

CONNECTORS

LOCKWASHER

STANDOFF

LOCKWASHER
GROUNDSTRAP

SCREW

AA.6.1.1.S/25

SCREW

WASHER

BASE

AA.6.1.1.5/26

BASE

GASKET→

MOUNT

AA.6.1.1.5/27

THUMBSCREW

GROUNDSTRAP

BASE

CONNECTOR

AA.6.1.1.5/28

SCREW
LOCKWASHER
GROUND STRAPS
FLANGE

FLANGE

ANGLE
BRACKET

AA.6.1.1.S/29

HARNESS
SCREW
LOCKWASHER
SCREW
LOCKWASHER
CLAMP
FLANGE
ANGLE BRACKET

GASKET

MOUNT

M.6.1.1.5/35

AA.6.1.1.S/31

AA.6.1.1.S/32

BASE

MOUNT

GASKET

CONNECTORS

FLANGE

M.6.1.1.5/34

AA.6.1.1.5/48

AA.6.1.1.S/51

BASE MOUNT

M.6.1.1.5/68

BASE

CONNECTORS

CONNECTORS

LOCKWASHER

STANDOFF

LOCKWASHER

GROUNDSTRAP

SCREW

LOCKWASHER

AA.6.1.1.5/62

M.6.1.1.5/64

BASE

CONNECTORS

CONNECTORS

LOCKWASHER

STANDOFF

LOCKWASHER

GROUNDSTRAP

SCREW

AA.6.1.1.5/64

BASE

CONNECTORS

CONNECTORS

LOCKWASHER

STANDOFF

LOCKWASHER
GROUNDSTRAP

SCREW

AA.6.1.1.5/62

BASE

CONNECTORS

CONNECTORS

STANDOFF

LOCKWASHER

LOCKWASHER

GROUNDSTRAP

SCREW

SCREW

WASHER
(4 PLACES)

BASE

AA.6.1.1.S/82

M.6.1.1.5/88

SCREW

LOCKWASHER

GROUND STRAPS

FLANGE

FLANGE

ANGLE
BRACKET

AA.6.1.1.S/88

SCREW

LOCKWASHER

GROUND STRAPS

FLANGE

FLANGE

ANGLE
BRACKET

AA.6.1.1.S/214

M.6.1.1.S/213

M.6.1.1.S/211

```
                    |TO    |T1S(1)=TRUE - user did step
                    |      |2 of TASK 1
           INCLUDE  |MACRO |(X=2):SAMEPAGE,$T1P2
                    |      |END
           PARAMS   |SAMEPAGE|SAMEPAGE
```

Name	Class	Type	LV	Use	Value/Array
STEP1	Window		PG	3	9 1,9 3
SCRW	Window		PG	2	9 31,9 36
WASH	Window		PG	2	10 5,10 11
BASE	Window		PG	2	11 13,11 16
MNT	Window		PG	2	13 19,13 23
CONN	Window		PG	2	15 5,15 14
GIN	Window		PG	1	4 15,4 16
TLS	Window		PG	1	5 15,5 16
PPS	Window		PG	1	6 15,6 16
X	Variable	Integer	PG	3	
STEP2	Window		PG	3	13 1,13 3
I	Variable	Integer	PG	3	

3. Unscrew and take off two connectors.

4. Unscrew and take off screw, two lockwashers, and ground strap from standoff with screwdriver. Get rid of lockwashers.

5. Take off base and gasket. Get rid of gasket.

6. Look at base for cracks or breaks. If bad, turn in. If OK, set aside for later use.

C( )L($T1P2)T(C,   )   AA.6.1.1.S/2/4

Leg? +Y | ATTN Functions to Inhibit
           | +

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

Commands for Display Construction

Command	Mod	Data
INCLUDE	CALC	TOOLS+TRUE
	MACRO	SET1
	PARAMS	$T1P2 5 Current page's label
COLOR	IF	T1S(2)=TRUE
	WINDOW	STEP3
	COLOR	GREEN
COLOR	IF	T1S(3)=TRUE
	WINDOW	STEP4
	COLOR	GREEN
COLOR	IF	T1S(4)=TRUE
	WINDOW	STEP5
	COLOR	GREEN
COLOR	IF	T1S(5)=TRUE
	WINDOW	STEP6
	COLOR	GREEN

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=TANK1!CONN1!SCRW1!LCKW1!GRST1!
		STAND!:!W2!BASE1!GASK1!GASK2!BASE2
	CALC	N+WHICHMATCH;TANK+-(N=1);FALSE,TRUE
	TO	N;SAMEPAGE,$TANK,$GR4,$GR4,$GR4,$GR4,
		$GR4,$GR4,$GR3,$GR3,$GR3
COMPARE	AREAS	INPUT=STEP2!STEP3!STEP4!STEP5!STEP6
	CALC	I+-1+WHICHMATCH;T1S(I)+TRUE;X+T1S(2)+T1S(
		3)+T1S(4)+T1S(5);TSK1+T1S(0)+T1S(1)+X
	TO	(X=4):SAMEPAGE,$T1P3
INCLUDE	MACRO	END
	PARAMS	$TS1

Name	Class	Type	LV	Use	Value/Array
CONN1	Window	PG	2	3	30,3 41
SCRW1	Window	PG	2	5	26,5 31
LCKW1	Window	PG	2	6	5,6 16
GRST1	Window	PG	2	6	22,6 33
STAND	Window	PG	2	7	5,7 12
LCKW2	Window	PG	2	8	16,8 28
BASE1	Window	PG	2	10	14,10 17
GASK1	Window	PG	2	10	23,10 30

GASK2	Window	PG 2	11 16,11 23
BASE2	Window	PG 2	13 13,13 16
STEP3	Window	PG 3	3 1,3 3
STEP4	Window	PG 3	5 1,5 3
STEP5	Window	PG 3	10 1,10 3
STEP6	Window	PG 3	13 1,13 3
I	Variable Integer	PG 3	
X	Variable Integer	PG 4	

AA.6.1.1.S/2/5   (Task 1 cont'd)

Follow-on Maintenance:

To install receiver-transmitter antenna
base, refer to Task 5.

Commands for Display Construction

Command	Mod	Data
INCLUDE	CALC	TOOLS←FALSE
	MACRO	SET1
	PARAMS	$T1P3

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=TANK1!TASK5
	TO	WHICHMATCH:SAMEPAGE,$TANK,$T5P1
INCLUDE	MACRO	END
	PARAMS	SAMEPAGE

Name	Class	Type	LV	Use	Value/Array
TASK5	Window		PG	2	6 19,6 26

C( )L($T1P3)T(C,   )   AA.6.1.1.S/2/5

Log? +Y

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

Commands for Display Construction

Command	Mod	Data
INCLUDE	CALC	TOOLS←FALSE
	MACRO	SET1
	PARAMS	$T2P1 — Current page's label
COLOR	IF	T2S(0)=TRUE
	WINDOW	STEP1
	COLOR	GREEN
COLOR	IF	T2S(1)=TRUE
	WINDOW	STEP2
	COLOR	GREEN

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=TANK1!SCRW!WASH!BASE1!BASE2!MNT!
		CONN1!CONN2
	CALC	N←WHICHMATCH;TANK←-(N=1):FALSE,TRUE
	TO	N:SAMEPAGE,$TANK,$GR5,$GR5,$GR5,$GR5,
		$GR6,$GR7,$GR7 —
		Branch to a graphic
COMPARE	AREAS	INPUT=GIN1!TLS1!PPS1
	TO	WHICHMATCH:SAMEPAGE,$GMI,$TS2,$PP2
COMPARE	AREAS	INPUT=STEP1!STEP2
	CALC	I←WHICHMATCH−1;T2S(I)←TRUE;X←T2S(0)+T2S(
		1) —
		T2S(0)=TRUE – did step 1
		T2S(1)=TRUE – did step 2
		(X=2):SAMEPAGE,$T2P2
INCLUDE	MACRO	END
	PARAMS	SAMEPAGE

Name	Class	Type	LV	Use	Value/Array
X	Variable	Integer	PG	3	
SCRW	Window		PG	2	8 31,8 37
WASH	Window		PG	2	9 5,9 11
BASE1	Window		PG	2	9 35,9 38
BASE2	Window		PG	2	12 10,12 13
MNT	Window		PG	2	12 19,12 23
CONN1	Window		PG	2	14 5,14 15
CONN2	Window		PG	2	15 5,15 15
STEP1	Window		PG	3	8 1,8 3

AA.6.1.1.S/2/6

■ TASK 2. REMOVE RECEIVER ANTENNA BASE

Mark	1. General Instructions
to	2. Tools and Supplies
Review	3. Preliminary Procedures

1. Unscrew and take out four screws and washers from receiver antenna base with socket and handle.

2. Lift base off mount gently with pry bar just far enough to reach harness connector. Unscrew and take off connector.

c( )L($T2P1)T(C,   )   AA.6.1.1.S/2/6

Log? [+Y] | ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+NOWHE	+RETUR		ON	+
GO	+NOWHE	SKIP	+NOWHE	+NOWHE	BACK	+NOWHE	
OBJ	+NOWHE	MAP	+RETUR	ADV		+NOWHE	
HELP	+NOWHE	HARD	+NOWHE	EASY		+NOWHE	
RULE	+NOWHE	EXAMP	+NOWHE	PRAC		+NOWHE	
ENTER	+	TIMER	+	NEXT	+	+	
CA	+	WA	+	UN		+	

STEP2 | Window | | PG | 3 | 12 1,12 3
I | Variable | Integer | PG | 3 |

AA.6.1.1.S/2/7

(Task 2 cont'd)

3. Unscrew clamp thumbscrew of ground strap with pliers. Take off strap.

4. Take off base and gasket. Get rid of gasket.

5. Look at base for cracks or breaks. If bad, turn in. If OK, set aside for later use.

c( )L($T2P2)T(C,)   AA.6.1.1.S/2/7

Log? [+Y]

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	RETUR	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE		
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE		
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE		
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE		
ENTER	+	TIMER	+	NEXT	+		
CA	+	WA	+	UN	+		

Commands for Display Construction

Command	Mod	Data
INCLUDE	CALC	TOOLS+TRUE
	MACRO	SET1
	PARAMS	$T2P2 5 Current page's label
COLOR	IF	T2S(2)=TRUE
	WINDOW	STEP3
	COLOR	GREEN
COLOR	IF	T2S(3)=TRUE
	WINDOW	STEP4
	COLOR	GREEN
COLOR	IF	T2S(4)=TRUE
	WINDOW	STEP5
	COLOR	GREEN

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=TANK1!THUMB!GRUND!STRP1!STRP2!
		BASE1!GASK1!GASK2!BASE2
	CALC	N+WHICHMATCH;TANK+(N=1):FALSE,TRUE
	TO	N:SAMEPAGE,$TANK,$GR7,$GR7,$GR7,$GR7,
		$GR5,$GR6,$GR6,$GR5 D
		Branch to a graphic
COMPARE	AREAS	INPUT=STEP3!STEP4!STEP5
	CALC	I+WHICHMATCH+1;T2S(I)+TRUE;X+T2S(2)+T2S(
		3)+T2S(4);TSK2+T2S(0)+T2S(1)+X D
		T2S(2)=TRUE - did step 3
		T2S(3)=TRUE - did step 4
		T2S(4)=TRUE - did step 5
	TO	(X=3):SAMEPAGE,$T2P3
INCLUDE	MACRO	END
	PARAMS	$TS2

Name	Class	Type	LV	Use	Value/Array
THUMB	Window		PG	2	3 19,3 28
GRUND	Window		PG	2	3 33,3 39
STRP2	Window		PG	2	4 33,4 39
BASE1	Window		PG	2	6 14,6 17
BASE2	Window		PG	2	9 13,9 16
GASK1	Window		PG	2	6 23,6 30
GASK2	Window		PG	2	7 16,7 23

STEP3	Window	PG 3	3 1,3 3
STEP4	Window	PG 3	6 1,6 3
STEP5	Window	PG 3	9 1,9 3
I	Variable Integer	PG 3	
X	Variable Integer	PG 4	
STRP1	Window	PG 2	4 5,4 9

AA.6.1.1.S/2/8   (Task 2 cont'd)

Follow-on Maintenance:

To install receiver antenna base, refer to Task 4.

C( )L($T2P3)T(C,   )   AA.6.1.1.S/2/8

Log? +Y

```
ATTN Functions to Inhibit
+
```

Commands For Display Construction

Command	Mod	Data
INCLUDE	CALC	TOOLS+FALSE
	MACRO	SET1
	PARAMS	$T2P3

Commands For Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=TANK1!TASK4
	TO	WHICHMATCH:SAMEPAGE,$TANK,$T4P1
INCLUDE	MACRO	END
	PARAMS	SAMEPAGE

Name	Class	Type	LV	Use	Value/Array
TASK4	Window		PG	2	6 11,6 18

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

Top-right corner: C-10

Commands for Display Construction

Command	Mod	Data
INCLUDE	CALC	TOOLS←FALSE
	MACRO	SET1
	PARAMS	$T3P1 D Current page's label

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=TANK1!GRST!ANGBR
	CALC	N←WHICHMATCH;TANK←(N=1):FALSE,TRUE
	TO	N:SAMEPAGE,$TANK,$GR8,$GR8
COMPARE	AREAS	INPUT=GIN1!TLS1!PPS1
	TO	WHICHMATCH:SAMEPAGE,$GMI,$TS3,$PP3
INCLUDE	MACRO	END
	PARAMS	SAMEPAGE

Name	Class	Type	LV	Use	Value/Array
GIN	Window		PG	1	4 15,4 16
TLS	Window		PG	1	5 15,5 16
PPS	Window		PG	1	6 15,6 16
GRST	Window		PG	2	12 18,12 30
ANGBR	Window		PG	2	14 18,14 31

AA.6.1.1.5/2/9

■ TASK 3. REPLACE ANTENNA GROUND STRAP
OR ANGLE BRACKET

Mark	1. General Instructions
to	2. Tools and Supplies
Review	3. Preliminary Procedures

Do this task to replace bad parts in either the receiver antenna base or the receiver-transmitter antenna base.

To replace the ground strap, use the instructions on the next page.
To replace the angle bracket, use the instructions on the pages following.

C( )L($T3P1)T(C,   )   AA.6.1.1.5/2/9

Log? +Y

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR		+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE		+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR		+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARB	+NOWHE		+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE		+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+		+	NEXT	+
CA	+	WA	+		+	UN	+

AA.6.1.1.S/2/10   (Task 3 cont'd)
■

To replace GROUND STRAP:

First, remove ground strap or bracket:

1. Unscrew and take out screw, two lockwashers, and antenna ground strap from flange with socket, adapter extension, and handle. Get rid of lockwashers.

2. Turn in bad ground strap.

C( )L($T3P2)T(C,   )   AA.6.1.1.S/2/10

Log? +Y

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	SKIP	+NOWHE	ON	+
GO	+NOWHE	SKIP	+NOWHE	MAP	+RETUR	BACK	+NOWHE
OBJ	+NOWHE	MAP	+NOWHE	HARD	+NOWHE	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EXAMP	+NOWHE	EASY	+NOWHE
?UL?	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE	PRAC	+NOWHE
?T?R	+	TIMER	+	NEXT	+	NEXT	+
CA	+	WA	+	UN	+	UN	+

Commands For Display Construction

Command	Mod	Data
INCLUDE	CALC	TOOLS+TRUE
	MACRO	SET1
	PARAMS	$T3P2 5 Current page's label
COLOR	IF	T3S(0)=TRUE
	WINDOW	STEP1
	COLOR	GREEN
COLOR	IF	T3S(1)=TRUE
	WINDOW	STEP2
	COLOR	GREEN

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=TANK1!SCRW!LCKW1!GRST1!FLANG!LCKW2
		!GRST2
	CALC	N+WHICHMATCH;TANK+(N=1):FALSE,TRUE
	TO	(N>1):$TANK,$GR8
COMPARE	AREAS	INPUT=STEP1!STEP2
	CALC	I+WHICHMATCH-1;T3S(I)+TRUE;X+T3S(0)+T3S(
		1)
	TO	(X=2):SAMEPAGE,$T3P3
INCLUDE	MACRO	END
	PARAMS	$TS3

Name	Class	Type	LV	Use	Value/Array
SCRW	Window		PG	2	8 26,8 31
LCKW1	Window		PG	2	8 5,9 16
GRST1	Window		PG	2	9 30,9 42
FLANG	Window		PG	2	10 10,10 15
LCKW2	Window		PG	2	12 5,12 17
GRST2	Window		PG	2	14 17,14 30
STEP1	Window		PG	3	8 1,8 3
STEP2	Window		PG	3	14 1,14 3
I	Variable	Integer	PG	3	
X	Variable	Integer	PG	3	

■ (Replace GROUND STRAP - Task 3 cont'd)

Next, install ground strap:

3. Put one new lockwasher on each side of new ground strap. Line up hole in ground strap with hole in flange.

4. Screw in and tighten screw with socket, adapter, extension and handle.

c( )1(sT3P3)T(C,   )   AA.6.1.1.S/2/11

Log? +Y | ATTN Functions to Inhibit
          | +

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETURN	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETURN	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

Command	Mod	Data
INCLUDE	CALC	TOOLS←TRUE
	MACRO	SET1
	PARAMS	$T3P3
COLOR	IF	T3S(2)=TRUE
	WINDOW	STEP3
	COLOR	GREEN
COLOR	IF	T3S(3)=TRUE
	WINDOW	STEP4
	COLOR	GREEN

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=TANK1!LCKW!GRST1!GRST2!FLANG!SCRW
	CALC	N←WHICHMATCH;TANK←(N=1):FALSE,TRUE
	TO	(N>1):$TANK,$GR8
COMPARE	AREAS	INPUT=STEP3!STEP4
	CALC	I←WHICHMATCH+1;T3S(I)←TRUE;X←T3S(2)+T3S(
		3)
	TO	(X=2):SAMEPAGE,$T3P4
INCLUDE	MACRO	END
	PARAMS	$TS3

Name	Class	Type	LV	Use	Value/Array
LCKW	Window		PG	2	8 17,8 26
GRST1	Window		PG	2	9 9,9 21
GRST2	Window		PG	2	10 5,10 16
FLANG	Window		PG	2	10 31,10 38
SCRW	Window		PG	2	12 26,12 30
STEP3	Window		PG	3	8 1,8 3
STEP4	Window		PG	3	12 1,12 3
I	Variable	Integer	PG	3	
X	Variable	Integer	PG	3	

C-13

AA.6.1.1.5/2/12   (Task 3 cont'd)

To replace ANGLE BRACKET

First, remove angle bracket:

1. Unscrew and take out screw and lockwasher from angle bracket and flange with socket, adapter, extension, and handle. Get rid of lockwasher.

c( )L($T3P4)T(C,   )   AA.6.1.1.5/2/12

Log? +Y

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETURN	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

Commands for Display Construction

Command	Mod	Data
INCLUDE	CALC	TOOLS+TRUE
	MACRO	SET1
	PARAMS	$T3P4 ⊐ Current page's label
COLOR	IF	T3S(4)=TRUE
	WINDOW	STEP1
	COLOR	GREEN

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=TANK1!SCRW!LCKW1!ANGBR!FLANG!LCKW2
	CALC	N+WHICHMATCH;TANK+-(N=1):FALSE,TRUE
	TO	(N>1):$TANK,$GR9
COMPARE	AREAS	INPUT=STEP1
	CALC	T3S(4)+TRUE
	TO	$T3P5
INCLUDE	MACRO	END
	PARAMS	$TS3

Name	Class	Type	LV	Use	Value/Array
SCRW	Window		PG	2	8 26,8 30
LCKW1	Window		PG	2	9 5,9 14
ANGBR	Window		PG	2	9 21,9 33
FLANG	Window		PG	2	10 5,10 10
LCKW2	Window		PG	2	11 28,11 39
STEP1	Window		PG	3	8 1,8 3

■ (Replace ANGLE BRACKET – Task 3 cont'd)

2. Slide loop clamp with bracket up
   harness to reach screw. Unscrew and
   take out screw and lockwasher from
   clamp and bracket with socket, adapter,
   extension and handle.
   Get rid of lockwasher.

3. Turn in bracket. Look at clamp for
   cracks and breaks. If bad, turn in.
   If OK, leave clamp on harness.

C( )L($T3P5)T(C,   )   AA.6.1.1.S/2/13

Log? [+Y] | ATTN Functions to Inhibit
            | +

Branch Specification Table

Code	Label	Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	RETURN	+NOWHE	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE		
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE		
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE		
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE		
ENTER	+	TIMER	+	NEXT	+		
CA	+	WA	+	UN	+		

Commands for Display Construction

Command	Mod	Data
INCLUDE	CALC	TOOLS←TRUE
	MACRO	SET1
	PARAMS	$T3P5 ⓓ Current page's label
COLOR	IF	T3S(5)=TRUE
	WINDOW	STEP2
	COLOR	GREEN
COLOR	IF	T3S(6)=TRUE
	WINDOW	STEP3
	COLOR	GREEN

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=TANK1!CLMP!BRCK1!HARN1!SCRW1!SCRW2!LCKW1!CLMP1!BRCK2!LCKW2!BRCK3!CLMP2!CLMP3!HARN2
	CALC	N←WHICHMATCH;TANK←(N=1):FALSE,TRUE
	TO	(N>1):$TANK,$GR9
COMPARE	AREAS	INPUT=STEP2!STEP3
	CALC	I←WHICHMATCH+4;T3S(I)←TRUE;X←T3S(5)+T3S(6)
	TO	(X=2):SAMEPAGE,$T3P6
INCLUDE	MACRO	END
	PARAMS	$TS3

Name	Class	Type	LV	Use	Value/Array
CLMP	Window		PG	2	5 16,5 20
BRCK1	Window		PG	2	5 27,5 33
HARN1	Window		PG	2	6 5,6 11
SCRW1	Window		PG	2	6 22,6 27
SCRW2	Window		PG	2	7 14,7 18
LCKW1	Window		PG	2	7 24,7 33
CLMP1	Window		PG	2	8 5,8 9
BRCK2	Window		PG	2	8 15,8 21
LCKW2	Window		PG	2	10 16,10 27
BRCK3	Window		PG	2	12 13,12 20
CLMP2	Window		PG	2	12 30,12 34
CLMP3	Window		PG	2	14 18,14 22
HARN2	Window		PG	2	14 27,14 35
STEP2	Window		PG	3	5 1,5 3

STEP3	Window		PG 3	12 1,12 3
I	Variable	Integer	PG 3	
X	Variable	Integer	PG 3	

Commands For Display Construction

Command	Mod	Data
INCLUDE	CALC	TOOLS+TRUE
	MACRO	SET1
	PARAMS	$T3P6 Current page's label
COLOR	IF	T3S(7)=TRUE
	WINDOW	STEP4
	COLOR	GREEN
COLOR	IF	T3S(8)=TRUE
	WINDOW	STEP5
	COLOR	GREEN
COLOR	IF	T3S(9)=TRUE
	WINDOW	STEP6
	COLOR	GREEN

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=TANK1!BRCK1!CLMP1!SCRW1!LCKW1!
		CLMP2!BRCK2!HARN!SCRW2!BRCK3!FLANG!SCRW3
		!LCKW2
	CALC	N=WHICHMATCH;TANK+(N=1):FALSE,TRUE
	TO	(N>1):$TANK,$GR9
COMPARE	AREAS	INPUT=STEP4!STEP5!STEP6
	CALC	I=WHICHMATCH+6;T3S(I)+TRUE;X+T3S(7)+T3S(
		8)+T3S(9);TSK3+T3S(0)+T3S(1)+T3S(2)+T3S(
		3)+T3S(4)+T3S(5)+T3S(6)+X
	TO	(X=3):SAMEPAGE,$T3P7
INCLUDE	MACRO	END
	PARAMS	$TS3

Name	Class	Type	LV	Use	Value/Array
BRCK1	Window		PG	2	4 32,4 38
CLMP1	Window		PG	2	5 13,5 18
SCRW1	Window		PG	2	5 29,5 33
LCKW1	Window		PG	2	6 5,6 15
CLMP2	Window		PG	2	8 11,8 15
BRCK2	Window		PG	2	8 22,8 28
HARN	Window		PG	2	9 5,9 12
SCRW2	Window		PG	2	9 22,9 26
BRCK3	Window		PG	2	12 25,12 31
FLANG	Window		PG	2	13 8,13 14

AA.6.1.1.S/2/14
(Replace ANGLE BRACKET - Task 3 cont'd)

Next, install angle bracket:
4. Line up bottom hole in new bracket with hole in clamp. Screw in screw and new lockwasher.

5. Slide clamp with bracket halfway down harness. Tighten screw with socket, adapter, extension and handle.

6. Line up top hole in bracket with hole in flange. Screw in and tighten screw and new lockwasher with socket, adapter, extension and handle.

c( )L(ST3P6)T(C,)   AA.6.1.1.S/2/14

Log? [+Y] | ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

SCRW3	Window		PG 2	13 37,13 41
LCKW2	Window		PG 2	14 13,14 22
STEP4	Window		PG 3	4 1,4 3
STEP5	Window		PG 3	8 1,8 3
STEP6	Window		PG 3	12 1,12 3
I	Variable	Integer	PG 3	
X	Variable	Integer	PG 4	

Commands for Display Construction

Command	Mod	Data
INCLUDE	CALC	TOOLS←FALSE
	MACRO	SET1
	PARAMS	$T3P7

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=TANK1!TASK5!TM1!TM2
	TO	WHICHMATCH:SAMEPAGE,$TANK,$T5P1,$TM1,
		$TM1
INCLUDE	MACRO	END
	PARAMS	SAMEPAGE

Name	Class	Type	LV	Use	Value/Array
TASK5	Window		PG	2	8 20,8 27
TITL1	Window		PG	1	11 14,11 19
TITL2	Window		PG	1	14 22,14 28
TM1	Window		PG	2	11 14,11 30
TM2	Window		PG	2	14 22,14 38

AA.6.1.1.S/2/15
■

Follow-on Maintenance for
Receiver Transmitter Antenna Ground Strap
or Angle Bracket:

1. Install receiver-transmitter antenna
base, refer to Task 5.

2. Install receiver-transmitter antenna,
refer to TM 9-2350-255-10.

3. Check operation of receiver-transmitter
system, refer to TM 9-2350-255-10.

C( )L($T3P7)T(C,   )   AA.6.1.1.S/2/15

Log? [+Y]   ATTN Functions to Inhibit
        +

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

Commands for Display Construction

Command	Mod	Data
INCLUDE	CALC	TOOLS←FALSE
	MACRO	SET1
	PARAMS	$T3P8

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=TANK1!TASK4!TM1!TM2
	TO	WHICHMATCH:SAMEPAGE,$TANK,$T4P1,$TM1,
		$TM1
INCLUDE	MACRO	END
	PARAMS	SAMEPAGE

Name	Class	Type	LV	Use	Value/Array
TASK4	Window		PG	2	8 14,8 21
TITL1	Window		PG	1	11 14,11 20
TITL2	Window		PG	1	14 22,14 28
TM1	Window		PG	2	11 14,11 30
TM2	Window		PG	2	14 22,14 38

AA.6.1.1.S/2/16

Follow-on Maintenance for
Receiver Antenna Ground Strap or
Angle Bracket:

1. Install receiver antenna base,
   refer to Task 4.

2. Install receiver antenna,
   refer to TM 9-2350-255-10.

3. Check operation of auxiliary receiver
   system, refer to TM 9-2350-255-10.

C( )L($T3P8)T(C,)   AA.6.1.1.S/2/16

Log? [+Y]

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

Commands for Display Construction

Command	Mod	Data
INCLUDE	CALC	TOOLS←FALSE
	MACRO	SET1
	PARAMS	$T4P1 Current page's label
COLOR	IF	T4S(0)=TRUE
	WINDOW	STEP1
	COLOR	GREEN
COLOR	IF	T4S(1)=TRUE
	WINDOW	STEP2
	COLOR	GREEN

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=TANK1!GASK!MNT!CLMP!GRST!CONN!THUMP
	CALC	N←WHICHMATCH;TANK←(N=1):FALSE,TRUE
	TO	N:SAMEPAGE,$TANK,$GR10,$GR10,$GR11,$GR11,$GR11,$GR11
COMPARE	AREAS	INPUT=GIN1!TLS1!PPS1
	TO	WHICHMATCH:SAMEPAGE,$GMI,$TS4,$PP4
COMPARE	AREAS	INPUT=STEP1!STEP2
	CALC	I←WHICHMATCH-1;T4S(I)←TRUE;X←T4S(0)+T4S(1)
	TO	(X=2):SAMEPAGE,$T4P2
INCLUDE	MACRO	END
	PARAMS	SAMEPAGE

Name	Class	Type	LV	Use	Value/Array
GIN	Window		PG 1	4	15,4 16
TLS	Window		PG 1	5	15,5 16
PPS	Window		PG 1	6	15,6 16
GASK	Window		PG 2	9	13,9 18
MNT	Window		PG 2	9	31,9 37
CLMP	Window		PG 2	11	20,11 24
GRST	Window		PG 2	11	29,11 40
CONN	Window		PG 2	12	18,12 27
THUMP	Window		PG 2	13	5,13 14
STEP1	Window		PG 3	9	1,9 3
STEP2	Window		PG 3	11	1,11 3
I	Variable	Integer	PG 3		

AA.6.1.1.S/2/17
TASK 4. INSTALL RECEIVER ANTENNA BASE

Mark	1. General Instructions
to	2. Tools and Supplies
Review	3. Preliminary Procedures

1. Put new gasket on antenna mount.

2. Put thumbscrew clamp of ground strap on antenna base connector. Tighten thumbscrew with pliers.

C( )L($T4P1)T(C,)   AA.6.1.1.S/2/17

Leg? [+Y]   ATTN Functions to Inhibit
                    +

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

X |Variable|Integer|PG|3 |

AA.6.1.1.S/2/18 (Task 4 cont'd)

3. Screw on and tighten harness connector to connector.

4. Put a light coat of oil on thread of four screws.

5. Screw in four screws and washers with socket and handle. Torque screws between 80 and 100 pound inches (9 and 11 Newton meters) with socket and torque wrench.

C( )L($T4P2)T(C,)   AA.6.1.1.S/2/18

Log? ☐Y   ┌─────────────────────────┐
     +   │ ATTN Functions to Inhibit │
          │ +   │
          └─────────────────────────┘

Branch Specification Table

Code	Label	Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+RETUR		+NOWHE
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE		+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE		+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE		+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE		+NOWHE
ENTER	+	TIMER	+	NEXT	+		
CA	+	WA	+	UN	+		

Commands For Display Construction

Command	Mod	Data
INCLUDE	CALC	TOOLS←TRUE
	MACRO	SET1
	PARAMS	$T4P2 ⓓ Current page's label
COLOR	IF	T4S(2)=TRUE
	WINDOW	STEP3
	COLOR	GREEN
COLOR	IF	T4S(3)=TRUE
	WINDOW	STEP4
	COLOR	GREEN
COLOR	IF	T4S(4)=TRUE
	WINDOW	STEP5
	COLOR	GREEN

Commands For Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=TANK1!CONN1!CONN2!SCRW1!SCRW2!WASH !SCRW3
	CALC	N←WHICHMATCH;TANK←(N=1):FALSE,TRUE
	TO	(N>1):$TANK,$GR11
COMPARE	AREAS	INPUT=STEP3!STEP4!STEP5
	CALC	I←WHICHMATCH+1;T4S(I)←TRUE;X←T4S(2)+T4S(3)+T4S(4);TSK4←T4S(0)+T4S(1)+X
	TO	(X=3):SAMEPAGE,$T4P3
INCLUDE	MACRO	END
	PARAMS	$TS4

Name	Class	Type	LV	Use	Value/Array
CONN1	Window		PG	2	4 34,4 43
CONN2	Window		PG	2	5 8,5 18
SCRW1	Window		PG	2	8 10,8 17
SCRW2	Window		PG	2	10 19,10 24
WASH	Window		PG	2	10 30,10 36
SCRW3	Window		PG	2	11 31,11 37
STEP3	Window		PG	3	4 1,4 3
STEP4	Window		PG	3	7 1,7 3
STEP5	Window		PG	3	10 1,10 3
I	Variable	Integer	PG	3	
X	Variable	Integer	PG	4	

AA.6.1.1.S/2/19   (Task 4 cont'd)

Follow-on Maintenance:

1. Install receiver antenna, refer to TM 9-2350-255-10.

2. Check operation of auxiliary receiver system, refer to TM 9-2350-255-10.

C( )L($T4P3)T(C,   )   AA.6.1.1.S/2/19

Log? [+Y] | ATTN Functions to Inhibit |
              +

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

Commands for Display Construction

Command	Mod	Data
INCLUDE	CALC	TOOLS+FALSE
	MACRO	SET1
	PARAMS	$T4P3

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=TANK1!TM1!TM2
	TO	WHICHMATCH:SAMEPAGE,$TANK,$TM1,$TM1
INCLUDE	MACRO	END
	PARAMS	SAMEPAGE

Name	Class	Type	LV	Use	Value/Array
TITL1	Window		PG	1	6 14,6 20
TITL2	Window		PG	1	9 22,9 28
TM1	Window		PG	2	6 14,6 30
TM2	Window		PG	2	9 22,9 38

Commands for Display Construction

Command	Mod	Data
INCLUDE	CALC	TOOLS←FALSE
	MACRO	SET1
	PARAMS	$T5P1 ^{D} Current page's label
COLOR	IF	T5S(0)=TRUE
	WINDOW	STEP1
	COLOR	GREEN
COLOR	IF	T5S(1)=TRUE
	WINDOW	STEP2
	COLOR	GREEN
COLOR	IF	T5S(2)=TRUE
	WINDOW	STEP3
	COLOR	GREEN

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=TANK1!CASK!MNT!CONN1!CONN2!BASE!
		SCRW!GRST!LCKW!STAND
	CALC	N←WHICHMATCH;TANK←(N=1):FALSE,TRUE
	TO	N:SAMEPAGE,$TANK,$GR3,$GR13,$GR13,
		$GR13,$GR13,$GR13,$GR13,$GR13
COMPARE	AREAS	INPUT=GIN1!TLS1!PPS1
	TO	WHICHMATCH:SAMEPAGE,$GMI,$TS5,$PP5
COMPARE	AREAS	INPUT=STEP1!STEP2!STEP3
	CALC	I←WHICHMATCH-1;T5S(I)←TRUE;X←T5S(0)+T5S(
		1)+T5S(2)
	TO	(X=3):SAMEPAGE,$T5P2
INCLUDE	MACRO	END
	PARAMS	SAMEPAGE

Name	Class	Type	LV	Use	Value/Array
GIN	Window		PG	1	4 15,4 16
TLS	Window		PG	1	5 15,5 16
PPS	Window		PG	1	6 15,6 16
CASK	Window		PG	2	8 13,8 18
MNT	Window		PG	2	8 31,8 37
CONN1	Window		PG	2	11 5,11 14
CONN2	Window		PG	2	11 19,11 28
BASE	Window		PG	2	12 25,12 30
SCRW	Window		PG	2	14 26,14 31

AA.6.1.1.S/2/20

TASK 5. INSTALL RECEIVER-TRANSMITTER ANTENNA BASE

Mark	1. General Instructions
to	2. Tools and Supplies
Review	3. Preliminary Procedures

1. Put new gasket on antenna mount.

2. Screw on and tighten two harness connectors to connectors of receiver-transmitter antenna base.

3. Screw in and tighten screw, ground strap, and two new lockwashers on standoff with screwdriver.

C( )L($T5P1)T(C,)   AA.6.1.1.S/2/20

Log? [+Y]   ATTN Functions to Inhibit   +

Branch Specification Table

Code	Label	Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETURN	+RETUR	+NOWHE	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE		
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE		
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE		
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE		
ENTER	+	TIMER	+	NEXT	+		
CA	+	WA	+	UN	+		

GRST	Window	PG 2	14 33,14 38
LCKW	Window	PG 2	15 24,15 34
STAND	Window	PG 2	16 8,16 15
STEP1	Window	PG 3	8 1,8 3
STEP2	Window	PG 3	10 1,10 3
STEP3	Window	PG 3	14 1,14 3
I	Variable Integer	PG 3	
X	Variable Integer	PG 3	

AA.6.1.1.5/2/21   (Task 5 cont'd)

4. Lower base on mount. Check that connectors are away from flange and that holes of base are lined up with holes of mount.

5. Put a light coat of oil on threads of four screws.

6. Screw in four screws and washers with socket and handle. Torque screws between 80 and 100 pounds (9 and 11 Newton meters) with socket and torque wrench.

C( )L($T5P2)T(C,)   AA.6.1.1.5/2/21

Log? +Y

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETURN	ON	+		+NOWHE
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE		+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE		+NOWHE
HELP	+NOWHE	HARB	+NOWHE	EASY	+NOWHE		+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE		+NOWHE
ENTER	+	TIMER	+	NEXT	+		
CA	+	WA	+	UN	+		

Commands for Display Construction

Command	Mod	Data
INCLUDE	CALC	TOOLS←TRUE
	MACRO	SET1
	PARAMS	$T5P2 5 Current page's label
COLOR	IF	T5S(3)=TRUE
	WINDOW	STEP4
	COLOR	GREEN
COLOR	IF	T5S(4)=TRUE
	WINDOW	STEP5
	COLOR	GREEN
COLOR	IF	T5S(5)=TRUE
	WINDOW	STEP6
	COLOR	GREEN

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=TANK1!BASE1!MNT1!CONN!FLANG!BASE2! MNT2!SCRW1!SCRW2!WASH!SCRW3
	CALC	N←WHICHMATCH;TANK←(N=1):FALSE,TRUE
	TO	N:SAMEPAGE,$TANK,$GR15,$GR14,$GR15,$GR14, ,$GR3,$GR3,$GR15,$GR15,$GR15,$GR15
COMPARE	AREAS	INPUT=STEP4!STEP5!STEP6
	CALC	I←WHICHMATCH+2;T5S(I)←TRUE;X←T5S(3)+T5S(4)+T5S(5);T5K5←T5S(0)+T5S(1)+T5S(2)+X
	TO	(X=3):SAMEPAGE,$T5P3
INCLUDE	MACRO	END
	PARAMS	$T5S5

Name	Class	Type	LV	Use	Value/Array
BASE1	Window		PG	2	3 11,3 14
MNT1	Window		PG	2	3 19,3 24
CONN	Window		PG	2	4 5,4 14
FLANG	Window		PG	2	4 30,4 35
BASE2	Window		PG	2	5 19,5 22
MNT2	Window		PG	2	6 14,6 20
SCRW1	Window		PG	2	9 10,9 17
SCRW2	Window		PG	2	11 19,11 24
WASH	Window		PG	2	11 30,11 36
SCRW3	Window		PG	2	12 31,12 37
STEP4	Window		PG	3	3 1,3 3

STEP5	Window		PG 3	8 1,8 3
STEP6	Window		PG 3	11 1,11 3
I	Variable	Integer	PG 3	
X	Variable	Integer	PG 4	

AA.6.1.1.S/2/22   (Task 5 cont'd)

Follow-on Maintenance:

1. Install receiver-transmitter antenna, refer to TM 9-2350-255-10.

2. Check operation of receiver-transmitter system, refer to TM 9-2350-255-10.

c( )L($T5P3)T(C,   )   AA.6.1.1.S/2/22

Log? [+Y]   ┌─────────────────────────────┐
             │ ATTN Functions to Inhibit   │
             │ +   │
             └─────────────────────────────┘

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+NOWHE
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

Commands for Display Construction

Command	Mod	Data
INPUT	CALC	TOOLS+FALSE;BACKP+$T5P3
	SPEC	SINGLE,INVISIBLE
RBOX	WINDOW	A
SHOW	WINDOW	BOTL
	RBOX	
	COLOR	CYAN
	DATA	↓BACK↓
SHOW	POSIT	17 36
	COLOR	CYAN
	DATA	↓MENU↓

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=TANK1!BACKB!MENUW!TM1!TM2
	TO	WHICHMATCH:SAMEPAGE,$TANK,$T5P2,$MENU,
		$TM1,$TM1
GO	TO	SAMEPAGE

Name	Class	Type	LV	Use	Value/Array
TITL1	Window		PG	1	6 14,6 20
TITL2	Window		PG	1	9 22,9 28
I	Variable	Integer	PG	1	
TM1	Window		PG	2	6 14,6 30
TM2	Window		PG	2	9 22,9 38

AA.6.1.1.S/3/B

Log? [=Y]

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOUHE	SKIP	+NOUHE	BACK	+NOUHE
OBJ	+NOUHE	MAP	+RETUR	ADV	+NOUHE
HELP	+NOUHE	HARB	+NOUHE	EASY	+NOUHE
RULE	+NOUHE	EXAMP	+NOUHE	PRAC	+NOUHE
ENTER	+	TIMER	+	NEXT	+
CA	+	UA	+	UN	+

AA.6.1.1.S/3/1

EQUIPMENT CONDITIONS

- Tank parked.
- Parking brake set.
- VEHICLE MASTER POWER switch set to OFF.
- Transmission shift control set to N.

C( )L(SEC)T(C,   )   AA.6.1.1.S/3/1

Log? +Y

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETURN	+RETUR	ON	+	+NOWHE
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	WARB	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

Commands for Display Construction

Command	Mod	Data
INCLUDE	MACRO	SET2

Commands for Response Analysis

Command	Mod	AREAS	Data
COMPARE		TO	INPUT=BACKW
		TO	BACKP
GO			SAMEPAGE

Commands for Display Construction

Command	Med	Data
INCLUDE	MACRO	SET2

Commands for Response Analysis

Command	Med	Data
INCLUDE	MACRO	BCK2

AA.6.1.1.S/3/2
GENERAL MAINTENANCE INSTRUCTIONS

Follow these maintenance practices
when working on communications equipment.
Be sure to observe all warnings.

CAUTION

Before putting on or taking off
radio equipment, make sure VEHICLE
MASTER POWER switch is set to OFF.
Turn off POWER switches of receiver-
transmitter and auxiliary receiver.
Failure to do so may damage equipment.

c( )L(sGMI)T(C,   )   AA.6.1.1.S/3/2

Log? +Y   ATTN Functions to Inhibit
                       +

Branch Specification Table

Code	Label	Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	RETUR	+NOWHE	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	RETUR	+NOWHE	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	NOWHE	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	NOWHE	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	+	+	NEXT	+
CA	+	WA	+	+	+	UN	+

AA.6.1.1.S/3/3
CARE OF EQUIPMENT

1. Put covers on antennas and communica-
tion equipment when equipment is shut
down during low temperature operation.
This keeps ice and frost off equipment.

2. Keep equipment wiped clean in desert
and dusty conditions. Make sure that
sand or dust does not gather or intake
cooling vents where it can get inside
equipment.

3. Wipe up any wet or damp places. Take
steps to keep water out of turret.

C( )L(sGM2)T(C,   )   AA.6.1.1.S/3/3

Log? +Y

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
CO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

Commands for Display Construction

Command	Mod	Data
INCLUDE	MACRO	SET2

Commands for Response Analysis

Command	Mod	Data
INCLUDE	MACRO	BCK2

Commands For Display Construction

Command	Mod	Data
INCLUDE	MACRO	SET2

Commands For Response Analysis

Command	Mod	Data
INCLUDE	MACRO	BCK2

AA.6.1.1.S/3/4
CLEANING ELECTRICAL COMPONENTS

WARNING

Solvent can irritate skin and can
give off harmful vapors. To avoid
injury, keep solvent away from heat,
wear protective clothing, and use
in a well-ventilated area.

1. Clean off oil, grease, and dirt from
cable harnesses, parts, and connectors
and cover clean parts with dust caps,
plugs or lint-free cloths.

C( )L($CM3)T(C,)   AA.6.1.1.S/3/4

Log? +Y   ^TN Functions to Inhibit

Branch Specification Table

Code	Label	~de	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARB	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

AA.6.1.1.S/3/5
(Cleaning Electrical Components - cont'd)

2. Rub corrosion off connector contacts and other pats with a pencil eraser. Remove rust by scraping, wire brushing, or both. If rust damage is too great, or on small thin parts that would be weakened by rust, you may need to replace the part. Find the cause of the rust and correct the problem.

C( )L(sCM4)T(C,)   AA.6.1.1.S/3/5

Log? [+Y]

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

Commands For Display Construction

Command	Mod	Data
INCLUDE	MACRO	SET2

Commands For Response Analysis

Command	Mod	Data
INCLUDE	MACRO	BCK2

AA.6.1.1.S/3/6
(Cleaning Electrical Components -- cont'd)

WARNING

Cleaning compound can cause skin rash and can give off harmful vapors. To avoid injury, use in a well-ventilated area. Wash immediately with soap and water if compound gets on skin or clothing.

3. Threaded holes in metal must be thoroughly clean when sealing compounds are used to lock screws in place. Take off old preservative or sealing

C( )L($GM5)T(C,)   AA.6.1.1.S/3/6

Log? +Y   ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

Commands for Display Construction

Command	Mod	Data
INCLUDE	MACRO	SET2

Commands for Response Analysis

Command	Mod	Data
INCLUDE	MACRO	BCK2

Commands for Display Construction

Command	Mod	Data
INCLUDE	MACRO	SET2

Commands for Response Analysis

Command	Mod	Data
INCLUDE	MACRO	BCK2

AA.6.1.1.S/3/7
(Cleaning Electrical Components -- cont'd)

compounds from threads with tap and tap
wrench. Blow loose particles out of
holes with compressed air, then clean
threads with solvent cleaning compound
MIL-C-81302 and brush. Let holes dry
before putting in screws.

4. Check intake cooling vents and screens
and exhaust ducts for anything that
will block flow of air. Clean intake
vents and screens to keep dirt from
getting inside equipment.

C( )L(SCM6)T(C,   )   AA.6.1.1.S/3/7

Log? [+Y] | ATTN Functions to Inhibit |
                        +

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
CO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

AA.6.1.1.S/3/8
TAGGING ELECTRICAL PARTS

1. Tag all harnesses, wires, and
   connectors for identification and
   location any time one is lifted out of
   position. Tagging saves time and helps
   avoid mistakes. Tag any parts before
   they are taken apart for repairs.
   Remove tags after parts are put back
   together.

C( )L($GM7)T(C,   )   AA.6.1.1.S/3/8

Log? +Y

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

Commands for Display Construction

Command	Mod	Data
INCLUDE	MACRO	SET2

Commands for Response Analysis

Command	Mod	Data
INCLUDE	MACRO	BCK2

AA.6.1.1.S/3/9
REPLACING ELECTRICAL WIRING OR COMPONENTS

1. Always look carefully at equipment for likely signs of trouble while doing routine work. Tie down harness that is free to move and rub against metal. If you look for possible troublespots and make repairs at once, you can cut down on repair time and extra work. Replace any harness or harness areas that have splits, tears, or worn spots. If troubleshooting isolates a broken harness, replace that harness.

C( )L($GM8)T(C,)   AA.6.1.1.S/3/9

Log? +Y | ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+NOWHE
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

Commands For Display Construction

Command	Mod	Data
INCLUDE	MACRO	SET2

Commands For Response Analysis

Command	Mod	Data
INCLUDE	MACRO	BCK2

AA.6.1.1.S/3/10
(Replacing Electrical Wiring -- cont'd)

Commands for Display Construction

Command	Mod	Data
INCLUDE	MACRO	SET2

Commands for Response Analysis

Command	Mod	Data
INCLUDE	MACRO	BCK2

2. Do not put a trouble light within 2 inches of a fire sensor. A trouble light too near a fire sensor can cause fire extinguishers to discharge.

3. Replace broken or torn instrument or gage lenses, rubber eye cups, head-rests, and other parts.

4. Replace any damaged or crossthreaded screws and nuts. Check for torn or stretched gaskets and leaks.

C( )L($GM9)T(C,   )   AA.6.1.1.S/3/10

Log? +Y   ATTN Functions to Inhibit
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Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

AA.6.1.1.S/3/11
(Replacing Electrical Wiring -- cont'd)

5. Replace any burned out lamps or fuses. If you cannot replace a lamp or fuse right away, tag it and go back to it later.

6. Tighten all loose parts. Use correct torque valves when tightening screws and nuts. Straighten bent parts where possible and check for cracks. Replace all missing parts.

7. Make sure that ground points in electrical system are kept clean, free of corrosion, and tight.

C( )L($sGM10)T(C,   )   AA.6.1.1.S/3/11

Log? [+Y] | ATTN Functions to Inhibit |
             | + |

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

Commands for Display Construction

Command	Mod	Data
INCLUDE	MACRO	SET2

Commands for Response Analysis

Command	Mod	Data
INCLUDE	MACRO	BCK2

AA.6.1.1.S/3/12
(Replacing Electrical Wiring -- cont'd)

8. Check mountings, parts, and shafts
   for proper electrical connection
   and alignment.

C( )L(sGM11)T(C,   )   AA.6.1.1.S/3/12

Log? [+Y]   ┌─────────────────────────┐
               │ ATTN Functions to Inhibit │
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Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

Commands For Display Construction

Command	Mod	Data
INCLUDE	MACRO	SET2

Commands For Response Analysis

Command	Mod	Data
INCLUDE	MACRO	BCK2

AA.6.1.1.S/3/13
REMOVING OR INSTALLING CONNECTORS

1. If connectors cannot be removed by hand, use slip joint conduit style pliers with plastic jaw inserts to loosen them. Finish removal by hand. Straighten any bent contacts with long round nose pliers. When installing connectors on larger harnesses, another soldier will be needed to help align the mating ends of the cable. Make sure that contacts and keyways line up. Tighten twist-snap-type connectors until a click is heard. Tighten screw-on-type connectors until the ratchet noise is heard to indicate that connectors are tight.

c( )L($CM12)T(C,)   AA.6.1.1.S/3/13

Log? [+Y] | ATTN Functions to Inhibit |
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Branch Specification Table

Code	Label	Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR		+RETURN	ON	+
GO	+NOWHE	SKIP	+NOWHE		+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR		+NOWHE	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE		+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE		+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+		+	NEXT	+
CA	+	WA	+		+	UN	+

Commands For Display Construction

Command	Mod	Data
INCLUDE	MACRO	SET2

Commands For Response Analysis

Command	Mod	Data
INCLUDE	MACRO	BCK2

AA.6.1.1.S/3/14
(Removing or Installing Connectors--cont'd)

2. Put a protective cap or cover over any electrical connector that is left un-covered. Cover connectors on any items being moved to or from the tank. Take off covers when connectors are put back.

3. Look at connectors for broken, missing, or pushed in contacts before making any connections. If a connector is bad notify support maintenance.

4. Tighten connectors by hand whenever tools are not called out.   AA.6.1.1.S/3/14
c( )L($CM13)T(C,)

Log? [+Y]   ATTN Functions to Inhibit
                 +

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

Commands for Display Construction

Command	Mod	Data
INCLUDE	MACRO	SET2
SHOW	POSIT	17 36
	COLOR	CYAN
	DATA	↓ INTRO ↓

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=MENUW
	TO	$INTR
INCLUDE	MACRO	BCK2

Log? [+Y]

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  ATTN Functions to Inhibit
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Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

Commands for Display Construction

Command	Med	Data
INCLUDE	MACRO	SET3

Commands for Response Analysis

Command	Med	Data
INCLUDE	MACRO	BCK3

AA.6.1.1.S/4/1

TOOLS AND SUPPLIES - TASK 1

Tools:
- bar, pry
- handle, socket wrench, ratchet, 3/8-inch square drive
- pliers, slip joint, conduit style with plastic jaw inserts
- screw driver, flat tip
- socket, socket wrench, 3/8-inch square drive, 9/16-inch

Supplies:
- pencil
- protective caps and plugs (bulk)
- tag, marker (as required)

C( )L(sTS1)T(C,)   AA.6.1.1.S/4/1

Log? [+Y] | ATTN Functions to Inhibit |
              | + |

Branch Specification Table

Code	Label	Code	Label	Label	Code	Label
OFF	+	EXIT	+RETUR	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+		NEXT	+
CA	+	WA	+		UN	+

AA.6.1.1.S/4/2
PRELIMINARY PROCEDURES - TASK 1

● Remove receiver-transmitter antenna,
  refer to TM 9-2350-255-10.

Commands for Display Construction

Command	Mod	Data
COMPUTE	IF	EMC≠BACK
	CALC	BACK1←BACKP
RBOX	WINDOW	TM
INCLUDE	MACRO	SET3

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=TM
	CALC	BACKP←$PP1
	TO	$TM1
COMPARE	AREAS	INPUT=BACKU
	TO	BACK1
GO	CALC	EMC←BACK
	TO	SAMEPAGE

Name	Class	Type	LV	Use	Value/Array
TM	Window		PG	3	4 14,4 30
F1	Variable	Flag	PG	1	

C( )L($PP1)T(C,   )   AA.6.1.1.S/4/2

Log? [+Y]

┌─────────────────────────────┐
│ ATTN Functions to Inhibit   │
│   │
│ +   │
└─────────────────────────────┘

Branch Specification Table

Code	Label	Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	RETUR	+NOWHE	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+	NEXT	+
CA	+	WA	+	UN	+	UN	+

AA.6.1.1.S/4/3

TOOLS AND SUPPLIES - TASK 2

Tools:
- bar, pry
- handle, socket wrench, ratchet, 3/8-inch square drive
- pliers, slip joint
- socket, socket wrench, 3/8-inch square drive, 9/16-inch

Supplies:
- protective caps and plugs (bulk)

Commands for Display Construction

Command	Mod	Data
INCLUDE	MACRO	SET3

Commands for Response Analysis

Command	Mod	Data
INCLUDE	MACRO	BCK3

c( )L(sTS2)T(c,)   AA.6.1.1.S/4/3

Log? +Y | ATTN Functions to Inhibit + |

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+NOWHE
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

AA.6.1.1.S/4/4
PRELIMINARY PROCEDURES - TASK 2

● Remove receiver antenna,
  refer to TM 9-2350-255-10.

Commands for Display Construction

Command	Mod	Data
COMPUTE	IF	EMC≠BACK
	CALC	BACK2←BACKP
RBOX	WINDOW	TM
INCLUDE	MACRO	SET3

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=TM
	CALC	BACKP←$PP2
	TO	$TM1
COMPARE	AREAS	INPUT=BACKW
	TO	BACK2
GO	CALC	EMC←BACK
	TO	SAMEPAGE

Name	Class	Type	LV	Use	Value/Array
TM	Window		PG	3	4 14,4 30
F1	Variable	Flag	PG	1	

C( )L($PP2)T(C,)   AA.6.1.1.S/4/4

Log? +Y

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

AA.6.1.1.S/4/5
TOOLS AND SUPPLIES - TASK 3

Tools:
- adapter, socket wrench, 3/8-inch square drive to 1/4-inch square drive
- extnsion, socket wrench, ratchet, 3/8-inch square drive
- handle, socket wrench, ratchet, 3/8-inch square drive
- socket, socket wrench, 3/8-inch square drive, 5/16 inch

Supplies—to replace   Supplies to replace
ground strap: angle bracket:
- lockwashers (2)   - lockwashers (2)
- strap, ground   - bracket, angle
c( )L($TS3)T(C,   )   AA.6.1.1.S/4/5

Log? +Y | ATTN Functions to Inhibit |
           | + |

Commands for Display Construction

Command	Mod	Data
INCLUDE	MACRO	SET3

Commands for Response Analysis

Command	Mod	Data
INCLUDE	MACRO	BCK3

Branch Specification Table

Code	Label	Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+		
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE		
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE		
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE		
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE		
ENTER	+	TIMER	+	NEXT	+		
CA	+	WA	+	UN	+		

AA.6.1.1.S/4/6
PRELIMINARY PROCEDURES - TASK 3

To remove transmitter antenna ground strap or angle bracket:
● remove receiver-transmitter antenna, refer to TM 9-2350-255-10.
● remove receiver-transmitter antenna base, refer to Task 1.

To remove receiver antenna ground strap or angle bracket:
● remove receiver antenna, refer to TM 9-2350-155-10.
● remove receiver antenna base, refer to Task 2.

C( )L($PP3)T(C,   )   AA.6.1.1.S/4/6

Log? [+Y]

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

Commands for Display Construction

Command	Mod	Data
COMPUTE	IF	EMC≠BACK
	CALC	BACK3←BACKP
RBOX	WINDOW	A
INCLUDE	MACRO	SET3

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=TM1!TM2
	CALC	BACKP←$PP3
	TO	$TM1
COMPARE	AREAS	INPUT=TASK1!TASK2
	TO	WHICHMATCH:SAMEPAGE,$T1P1,$T2P1
COMPARE	AREAS	INPUT=BACKW
	TO	BACK3
GO	CALC	EMC←BACK
	TO	SAMEPAGE

Name	Class	Type	LV	Use	Value/Array
TM1	Window		PG	2	6 14,6 30
TM2	Window		PG	2	13 14,13 30
TASK1	Window		PG	2	8 20,8 26
TASK2	Window		PG	2	15 14,15 20
F1	Variable	Flag	PG	1	

Commands for Display Construction

Command	Mod	Data
INCLUDE	MACRO	SET3

Commands for Response Analysis

Command	Mod	Data
INCLUDE	MACRO	BCK3

AA.6.1.1.S/4/7
TOOLS AND SUPPLIES - TASK 4

Tools:
● handle, socket wrench, ratchet, 3/8-inch square drive
● oiler, hand
● pliers, slip joint
● socket, socket wrench, 3/8-inch square drive, 9/16-inch
● wrench, torque, 0 to 120 inch-pound

Supplies:
● gasket
● lubricating oil, MIL-L-2104C

C( )L($TS4)T(C,   )   AA.6.1.1.S/4/7

Log? +Y

ATTN Functions to Inhibit
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Branch Specification Table

Code	Label	Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+		+NOWHE
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE		+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE		+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE		+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE		+NOWHE
ENTER	+	TIMER	+	NEXT	+		
CA	+	WA	+	UN	+		

AA.6.1.1.S/4/8
PRELIMINARY PROCEDURES - TASK 4

• Remove receiver antenna base,
refer to Task 2.

C( )L($PP4)T(C,)   AA.6.1.1.S/4/8

Log? +Y

ATTN Functions to Inhibit
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Branch Specification Table

Code	Label	Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR			ON	+
GO	+NOWHE	SKIP	+NOWHE			BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR			ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE			EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE			PRAC	+NOWHE
ENTER	+	TIMER	+			NEXT	+
CA	+	WA	+			UN	+

Commands for Display Construction

Command	Mod	Data
RBOX	WINDOW	TASK2
INCLUDE	MACRO	SET3

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=TASK2
	TO	$T2P1
INCLUDE	MACRO	BCK3

Name	Class	Type	LV	Use	Value/Array
TASK2	Window		PG	3	4 13,4 19

AA.6.1.1.S/4/9
TOOLS AND SUPPLIES - TASK 5

Tools:
- handle, socket wrench, ratchet, 3/8-inch square drive
- screwdriver, flat tip
- socket, socket wrench, 3/8-inch square drive, 9/16-inch
- wrench, torque, 0 to 120 inch-pounds
- oiler, hand

Supplies:
- gasket
- lockwasher (two required)
- lubricating oil, MIL-L-2104C

C( )L($TS5)T(C,   )   AA.6.1.1.S/4/9

Log? +Y | ATTN Functions to Inhibit |
              +

Commands for Display Construction

Command	Mod	Data
INCLUDE	MACRO	SET3

Commands for Response Analysis

Command	Mod	Data
INCLUDE	MACRO	BCK3

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

AA.6.1.1.S/4/10
PRELIMINARY PROCEDURES - TASK 5

● Remove receiver-transmitter antenna
base, refer to Task 1.

Commands for Display Construction

Command	Mod	Data
RBOX	WINDOW	TASK1
INCLUDE	MACRO	SET3

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=TASK1
	TO	$T1P1
INCLUDE	MACRO	BCK3

Name	Class	Type	LV	Use	Value/Array
TASK1	Window		PG	3	4 19,4 25

C( )L(sPP5)T(C,   )   AA.6.1.1.S/4/10

Log? [+Y]

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│ ATTN Functions to Inhibit │
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Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETURN	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

AA.6.1.1.S/5/B

Leg? [+Y]

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

Commands for Display Construction

Command	Mod	Data
RBOX	WINDOW	A
INCLUDE	MACRO	PICK
GRAPHIC	NUMBER	TANK:1,21
	POSIT	1 1

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=ANTN1!ANTN2
	TO	NEXT
INCLUDE	MACRO	BCK1
	PARAMS	BACKP

Name	Class	Type	LV	Use	Value/Array
ANTN1	Window		PG	2	8 24,9 27
ANTN2	Window		PG	2	6 32,6 35

C( )L(STANK)T(C,   )   AA.6.1.1.S/5/1

Log? +Y

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

AA.6.1.1.S/5/2

Commands for Display Construction

Command	Mod	Data
RBOX	WINDOW	A
INCLUDE	MACRO	PICK
GRAPHIC	NUMBER	TANK:2,22
	POSIT	1 11

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=BASE1!MOUNT
	TO	NEXT
INCLUDE	MACRO	BCK1
	PARAMS	$TANK

Name	Class	Type	LV	Use	Value/Array
BASE1	Window		PG	2	11 14,14 27
MOUNT	Window		PG	2	15 12,16 29

c( )L($GR2)T(C,)   AA.6.1.1.S/5/2

Log? +Y

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

AA.6.1.1.S/5/3

Commands for Display Construction

Command	Mod	Data
RBOX	WINDOW	A
INCLUDE	MACRO	PICK
GRAPHIC	NUMBER	TANK:3,23
	POSIT	1 7

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=TUBES
	TO	NEXT
INCLUDE	MACRO	BCK1
	PARAMS	$GR2

Name	Class	Type	LV	Use	Value/Array
TUBES	Window		PG	2	11 19,12 22

c( )L($GR3)T(C,   )   AA.6.1.1.S/5/3

Log? +Y

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	RETUR	+NOWHE	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE		+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE		+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE		+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE		+NOWHE
ENTER	+	TIMER	+	NEXT	+		+
CA	+	WA	+	UN	+		+

Commands for Display Construction

Command	Mod	Data
RBOX	WINDOW	A
INCLUDE	MACRO	PICK
GRAPHIC	NUMBER	TANK:4,24
	POSIT	1 3

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=TUBES
	TO	NEXT
INCLUDE	MACRO	BCK1
	PARAMS	$GR3

Name	Class	Type	LV	Use	Value/Array
TUBES	Window		PG	2	4 17,15 29

c( )L($GR4)T(C,   )   AA.6.1.1.S/5/4

Log? +Y   ATTN Functions to Inhibit
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Branch Specification Table

Code	Label	Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETURN	+RETURN		ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE		
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE		
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE		
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE		
ENTER	+	TIMER	+	NEXT	+		
CA	+	WA	+	UN	+		

AA.6.1.1.S/5/5

Commands for Display Construction

Command	Mod	Data
RBOX	WINDOW	A
INCLUDE	MACRO	PICK
GRAPHIC	NUMBER	TANK:5,25
	POSIT	1 7

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=BASE
	TO	NEXT
INCLUDE	MACRO	BCK1
	PARAMS	$GR4

Name	Class	Type	LV	Use	Value/Array
BASE	Window		PG	2	6 10,14 34

AA.6.1.1.S/5/5

C( )L($GR5)T(C,   )   AA.6.1.1.S/5/5

Leg? [+Y]

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ATTN Functions to Inhibit
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Branch Specification Table

Code	Label	Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	RETUR	+NOWHE	ON	+NOWHE
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE		
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE		
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE		
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE		
ENTER	+	TIMER	+	NEXT	+		
CA	+	WA	+	UN	+		

AA.6.1.1.S/5/6

C-61

Commands for Display Construction

Command	Mod	Data
RBOX	WINDOW	A
INCLUDE	MACRO	PICK
GRAPHIC	NUMBER	TANK:6,26
	POSIT	1 7

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=TUBES
	TO	NEXT
INCLUDE	MACRO	BCK1
	PARAMS	$GR5

Name	Class	Type	LV	Use	Value/Array
TUBES	Window		PG	2	5 18,15 24

C( )L($GR6)T(C,   )   AA.6.1.1.S/5/6

Log? +Y

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	RETUR	+NOWHE	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+	NEXT	+
CA	+	WA	+	UN	+	UN	+

Commands for Display Construction

Command	Mod	Data
INCLUDE	MACRO	PICK
GRAPHIC	NUMBER	TANK:7,27
	POSIT	1 5

Commands for Response Analysis

Command	Mod	Data
INCLUDE	MACRO	BCK1
	PARAMS	$GR6

C( )L($GR7)T(C,   )   AA.6.1.1.S/5/7

Log? +Y   ATTN Functions to Inhibit
            +

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

AA.6.1.1.S/5/8

Commands for Display Construction

Command	Mod	Data
SHOW	IF	TXTON
	WINDOW	11 1,16 43
	DATA	ANGLT
RBOX	WINDOW	A
INCLUDE	MACRO	PICK
GRAPHIC	IF	~TANK
	NUMBER	TXTON:8,80
GRAPHIC	IF	TANK
	NUMBER	TXTON:28,88
COLOR	GRAPH	
	WINDOW	ANGLB
	COLOR	CYAN

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=BRAC
	TO	NEXT
COMPARE	AREAS	INPUT=ANGLB
	CALC	TXTON+(TXTON):ON,OFF
	TO	SAMEPAGE
INCLUDE	MACRO	BCK1
	PARAMS	$GR7

Name	Class	Type	LV	Use	Value/Array
ANGLB	Window		PG	3	5 1,8 7
TXTON	Variable	Flag	PG	6	
ANGLT	Text		PG	2	
BRAC	Window		PG	2	5 13,7 15

C( )L($GR8)T(C,)   AA.6.1.1.S/5/8

Log? +Y

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

ANGLT

SME_   NATIONAL____   PART__

ITEM	DESCRIPTION	UM	QTY
19207	BRACKET, ANGLE	EA	1

AA.6.1.1.S/5/9

Commands for Display Construction

Command	Mod	Data
INCLUDE	MACRO	PICK
GRAPHIC	NUMBER	TANK:9,29
	POSIT	1 1

Commands for Response Analysis

Command	Mod	Data
INCLUDE	MACRO	BCK1
	PARAMS	$GR8

C( )L($GR9)T(C,   )   AA.6.1.1.S/5/9

Log? +Y   ┌──────────────────────────┐
           │ ATTN Functions to Inhibit │
           │   +   │
           └──────────────────────────┘

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

AA.6.1.1.S/5/10

Commands for Display Construction

Command	Mod	Data
RBOX	WINDOW	A
INCLUDE	MACRO	PICK
GRAPHIC	NUMBER	TANK:10,30
	POSIT	1 1

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=TUBES
	TO	NEXT
INCLUDE	MACRO	BCK1
	PARAMS	$GR9

Name	Class	Type	LV	Use	Value/Array
TUBES	Window		PG	2	1 18,13 34

C( )L(SCR10)T(C,)   AA.6.1.1.S/5/10

Log? +Y | ATTN Functions to Inhibit |
+

Branch Specification Table

Code	Label	Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR		+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE			BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR			ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE			EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE			PRAC	+NOWHE
ENTER	+	TIMER	+			NEXT	+
CA	+	WA	+			UN	+

AA.6.1.1.S/5/11

Commands for Display Construction

Command	Mod	Data
RBOX	WINDOW	A
INCLUDE	MACRO	PICK
GRAPHIC	NUMBER	TANK:11,31
	POSIT	1 2

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=CONN
	TO	NEXT
INCLUDE	MACRO	BCK1
	PARAMS	$GR10

Name	Class	Type	LV	Use	Value/Array
CONN	Window		PG	2	9 18,15 24

c( )L($GR11)T(C,   )   AA.6.1.1.S/5/11

Log? +Y

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

AA.6.1.1.S/5/12

Commands for Display Construction

Command	Mod	Data
RBOX	WINDOW	A
INCLUDE	MACRO	PICK
GRAPHIC	NUMBER	TANK:12,32
	POSIT	1 7

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=TUBES
	TO	NEXT
INCLUDE	MACRO	BCK1
	PARAMS	$GR11

Name	Class	Type	LV	Use	Value/Array
TUBES	Window		PG	2	11 18,15 22

c( )L($GR12)T(C,   )   AA.6.1.1.S/5/12

Log? +Y

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

Commands for Display Construction

Command	Mod	Data
RBOX	WINDOW	A
INCLUDE	MACRO	PICK
GRAPHIC	NUMBER	TANK:62,64
	POSIT	1 1

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=TUBES
	TO	NEXT
INCLUDE	MACRO	BCK1
	PARAMS	$GR12

Name	Class	Type	LV	Use	Value/Array
TUBES	Window		PG	2	4 15,15 27

---

c( )L($GR13)T(C,)   AA.6.1.1.S/5/13

Log? +Y

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR		+NOWHE	ON	+
GO	+NOWHE	SKIP	+NOWHE		+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR		+NOWHE	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE		+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE		+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+		+	NEXT	+
CA	+	WA	+		+	UN	+

AA.6.1.1.S/5/14

Commands for Display Construction

Command	Mod	Data
INCLUDE	MACRO	PICK
GRAPHIC	NUMBER	TANK:14,34
	POSIT	1 1

Commands for Response Analysis

Command	Mod	Data
INCLUDE	MACRO	BCK1
	PARAMS	$GR13

c( )L($GR14)T(C,   )   AA.6.1.1.S/5/14

Log? [+Y]

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

AA.6.1.1.5/5/15

Commands for Display Construction

Command	Mod	Data
INCLUDE	MACRO	PICK
GRAPHIC	NUMBER	TANK:2,82
	POSIT	1 10

Commands for Response Analysis

Command	Mod	Data
INCLUDE	MACRO	BCK1
	PARAMS	$GR14

Name	Class	Type	LV	Use	Value/Array
BASE	Window		PG	1	11 11,16 28

GASKET ———→

———→ MOUNT

C( )L($GR15)T(C,)   AA.6.1.1.5/5/15

Log? +Y

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

Log? [+Y]

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETURN	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

Name	Class	Type	LV	Use	Value/Array
BCKP	Variable	Label		FR	5
FLAG1	Variable	Flag		FR	3
STRTP	Variable	Label		FR	4

Commands for Display Construction

Command	Mod	Data
COMPUTE	IF	FLAG1=OFF
	CALC	STRTP←BACKP;FLAG1←ON
RBOX	WINDOW	A
INPUT	SPEC	SINGLE,INVISIBLE
	CURSOR	→
SHOW	WINDOW	BOTL
	RBOX	→
	DATA	BOX2

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=ANTN!BASE!AS
	CALC	BCKP←$TM1
	TO	WHICHMATCH:SAMEPAGE,$TM4,$TM3,$TM4
COMPARE	AREAS	INPUT=BACKW!NEXTW
	CALC	EMC←(WHICHMATCH=1):ENTER,BACK
	TO	WHICHMATCH:SAMEPAGE,STRTP,$TM2
GO	TO	SAMEPAGE

Name	Class	Type	LV	Use	Value/Array
ANTN	Window		PG	2	10 35,10 41
BASE	Window		PG	2	11 33,11 37
AS	Window		PG	2	12 19,12 26

AA.6.1.1.S/6/1

REMOVE ANTENNAS

NOTE: ● If antenna is tied down, remove tie down clip from antenna.

● If antenna is safety wired to base, remove safety wire.

1. Take off receiver-transmitter antenna by unscrewing it from mount base. If equipped with AS 1729, unscrew parts.

Touch next↓

C( )L($TM1)T(C,)   AA.6.1.1.S/6/1

Log? [+Y]

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETURN	ON	+NOWHE
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

AA.6.1.1.S/6/2

2. Take off receiver antenna by unscrewing from mount. If equiped with three piece antenna, unscrew parts.

3. Stow antennas in the turret where they will not be damaged.

c( )L($TM2)T(C,   )   AA.6.1.1.S/6/2

Log? +Y

ATTN Functions to Inhibit
+

Commands for Display Construction

Command	Mod	Data
RBOX	WINDOW	A
INPUT	SPEC	SINGLE,INVISIBLE
	CURSOR	→
SHOW	WINDOW	BOTL
	RBOX	
	DATA	BOX2

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=ANTN1!MOUNT!ANTN2!ANTN3
	CALC	BCKP+$TM2
	TO	WHICHMATCH:SAMEPAGE,$TM4,$TM3,$TM4,$TM4
COMPARE	REMARK	There used to be an IF mod here. I deleted it by accident, and I do not know what was in it.
	AREAS	INPUT=BACKW!NEXTW
	CALC	I+WHICHMATCH;EMC+(I=1):BACK,ENTER
	TO	I:SAMEPAGE,$TM1,STRTP
GO	TO	SAMEPAGE

Name	Class	Type	LV	Use	Value/Array
ANTN1	Window		PG	2	3 23,3 29
MOUNT	Window		PG	2	4 21,4 26
ANTN2	Window		PG	2	5 22,5 29
ANTN3	Window		PG	2	9 10,9 17
I	Variable	Integer	PG	4	

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

AA.6.1.1.S/6/3

Commands for Display Construction

Command	Mod	Data
INCLUDE	MACRO	SET3
GRAPHIC	NUMBER	60

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=BACKW
	TO	BCKP
GO	TO	SAMEPAGE

c( )L(sTM3)T(C,   )   AA.6.1.1.S/6/3

Log? +Y

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR		+RETURN	ON	+
GO	+NOWHE	SKIP	+NOWHE		+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR		+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE		+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE		+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+		+	NEXT	+
CA	+	WA	+		+	UN	+

Commands for Display Construction

Command	Mod	Data
INCLUDE	MACRO	SET3
GRAPHIC	NUMBER	40
	POSIT	5 16

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=BACKW
	TO	BCKP
GO	TO	SAMEPAGE

AA.6.1.1.5/6/4

ANTENNAS MAY BE OF DIFFERENT TYPES

1 piece antenna [TOP SECTION

2 piece antenna (AS 1729) [BOTTOM SECTION

MS-116A

3 piece antenna (AS 2731) [MS-117A
MS-118A
TOP SECTION

C( )L(STM4)T(C,   )   AA.6.1.1.5/6/4

Log? +Y

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

08/10/82 14:46 AA.6.1.1.S/B

Log? [Y] | ATTN Functions to Inhibit |

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF		EXIT	RETUR	ON	
GO	NOWHE	SKIP	NOWHE	BACK	NOWHE
OBJ	NOWHE	MAP	RETUR	ADV	NOWHE
HELP	NOWHE	HARD	NOWHE	EASY	NOWHE
RULE	NOWHE	EXAMP	NOWHE	PRAC	NOWHE
ENTER		TIMER	NOWHE	NEXT	NOWHE
CA		WA		UN	

BOX2
[BACK]

BOX1
[BACK]

[NEXT]

Name	Class	Type	LV	Use	Value/Array
$TS1	Label		CH	3	4/1
$PP1	Label		CH	3	4/2
$TS2	Label		CH	3	4/3
$PP2	Label		CH	3	4/4
$TS3	Label		CH	7	4/5
$PP3	Label		CH	3	4/6
$TS4	Label		CH	3	4/7
$PP4	Label		CH	2	4/8
$TS5	Label		CH	3	4/9
$PP5	Label		CH	2	4/10
$TANK	Label		CH	22	5/1
$GR2	Label		CH	5	5/2
$GR3	Label		CH	11	5/3
$GR4	Label		CH	9	5/4
$GR5	Label		CH	8	5/5
$GR6	Label		CH	5	5/6
$GR7	Label		CH	8	5/7
$GR8	Label		CH	6	5/8
$GR9	Label		CH	5	5/9
$GR10	Label		CH	4	5/10
$GR11	Label		CH	7	5/11
$GR12	Label		CH	2	5/12
$GR13	Label		CH	10	5/13
$GR14	Label		CH	4	5/14
$GR15	Label		CH	7	5/15
$EC	Label		CH	2	3/1
$GMI	Label		CH	8	3/2
$INTR	Label		CH	11	2/1
$T1P1	Label		CH	6	2/3
$T1P2	Label		CH	4	2/4
$T1P3	Label		CH	3	2/5
$T2P1	Label		CH	6	2/6
$T2P2	Label		CH	4	2/7
$T2P3	Label		CH	3	2/8
$T3P1	Label		CH	4	2/9
$T3P2	Label		CH	3	2/10
$T3P3	Label		CH	4	2/11
$T3P4	Label		CH	4	2/12
$T3P5	Label		CH	4	2/13
$T3P6	Label		CH	4	2/14

Name	Type	Subtype	CH	Value
$T3P7	Label		CH 4	2/15
$T3P8	Label		CH 2	2/16
$T4P1	Label		CH 6	2/17
$T4P2	Label		CH 4	2/18
$T4P3	Label		CH 3	2/19
$T5P1	Label		CH 6	2/20
$T5P2	Label		CH 5	2/21
$T5P3	Label		CH 3	2/22
BOTL	Window		CH 8	17 1,17 43
BACKP	Variable	Label	CH 16	
$GM2	Label		CH 2	3/3
BACKB	Window		CH 4	17 1,17 6
NEXTB	Window		CH 8	17 38,17 43
N	Variable	Integer	CH 43	
SET1	Macro	Display	CH 20	
A	Window		CH 18	1 1,16 43
BCK1	Macro	Respond	CH 16	
BACKW	Window		CH 17	16 1,17 8
PICK	Macro	Display	CH 16	
TANK	Variable	Flag	CH 33	
NEXTW	Window		CH 6	16 36,17 43
NXT	Variable	Label	CH 3	
BCK2	Macro	Respond	CH 14	
BOX2	Text		CH 6	
T1S	Variable	Integer	CH 17	5
TOOLS	Variable	Flag	CH 22	
TOOL	Window	Display	CH 2	17 17,17 25
T2S	Variable	Flag	CH 15	4
BOX1	Text		CH 6	
END	Macro	Respond	CH 20	
GIN1	Window		CH 6	4 15,4 16
TLS1	Window		CH 6	5 15,5 16
PPS1	Window		CH 6	6 15,6 16
SET2	Macro	Display	CH 15	
T3S	Variable	Flag	CH 32	9
T4S	Variable	Flag	CH 15	4
T5S	Variable	Flag	CH 18	5
PREVP	Variable	Label	CH 6	
$GM3	Label		CH 2	3/4
$GM4	Label		CH 2	3/5
$GM5	Label		CH 2	3/6
$GM6	Label		CH 2	3/7

Name	Type		CH	
$GM7	Label		CH 2	3/8
$GM8	Label		CH 2	3/9
$GM9	Label		CH 2	3/10
$GM10	Label		CH 2	3/11
$GM11	Label		CH 2	3/12
$GM12	Label		CH 2	3/13
$GM13	Label		CH 2	3/14
SET3	Macro	Display	CH 14	
BCK3	Macro	Respond	CH 8	
MENUW	Equiv.		CH 3	NEXTW
$BEGN	Label		CH 3	1/1
$CYAN	Label		CH 3	1/3
$GREN	Label		CH 3	1/4
$1	Label		CH 2	1/5
$2	Label		CH 3	1/2
$MENU	Label		CH 9	2/2
TSK1	Variable	Integer	CH 3	
NXXT	Variable	Label	CH 3	
TSK2	Variable	Integer	CH 3	
TSK3	Variable	Integer	CH 3	
TSK4	Variable	Integer	CH 3	
TSK5	Variable	Integer	CH 3	
$TM1	Label		CH 14	6/1
$TM2	Label		CH 3	6/2
$TM3	Label		CH 3	6/3
$TM4	Label		CH 6	6/4
BACK1	Variable	Label	CH 3	
BACK2	Variable	Label	CH 3	
BACK3	Variable	Label	CH 3	

AA.6.1.1.S:SET1/1

Name	Class	Type	LV	Use	Value/Array
PC	Constant	Integer	MA	2	1
TLAST	Text		MA	2	

TLAST
BACK

TOOLS   NEXT

Commands for MACRO Display Construction

Command	Mod	Data
RBOX	WINDOW	A
INPUT	SPEC	SINGLE,INVISIBLE
	CURSOR	→
SHOW	CALC	BACKP←ΔPG
	WINDOW	BOTL
RBOX		
	DATA	TOOLS:BOX2,TLAST

AA.6.1.1.S:BCK1/1

Commands for MACRO Response Analysis

Command	Mod	Data
COMPARE	IF	TANK
	AREAS	INPUT=BACKW!NEXTW
	CALC	NXT←(PAGE=MAXPAGE):NEXT,SAMEPAGE
	TO	WHICHMATCH:SAMEPAGE,Δ1,NXT
COMPARE	IF	~LASTIF
	AREAS	INPUT=BACKW
	TO	BACKP
GO	TO	SAMEPAGE

AA.6.1.1.S:PICK/1

Name	Class	Type	LV	Use	Value/Array
FLG1	Equiv.		MA	4	LI(0)

Commands for MACRO Display Construction

Command	Mod	Data
SHOW	CALC	FLG1←(TANK∧(PAGE≠MAXPAGE))
	POSIT	17 1
	DATA	FLG1:BOX1,BOX2
RBOX	WINDOW	FLG1:BACKW,(16 1,17 43)
INPUT	SPEC	SINGLE,INVISIBLE
	CURSOR	→

AA.6.1.1.S:END/1

Name	Class	Type	LV	Use	Value/Array
TOOLP	Constant	Integer	MA	2	1

Commands for MACRO Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=BACKB!NEXTB!TOOL
	CALC	PREVP←(PAGE-1):$INTR,$MENU,$T1P1, $T1P2,$MENU,$T2P1,$T2P2,$MENU,$T3P1, $T3P2,$T3P3,$T3P4,$T3P5,$T3P6,$T3P7, $MENU,$T4P1,$T4P2,$MENU,$T5P1,$T5P2;NXXT ←[(PAGE=5)∨(PAGE=8)∨(PAGE=16)∨(PAGE=19)] :NEXT,$MENU

		PREVP - Previous page
		NXXT - Next page
	TO	WHICHMATCH:SAMEPAGE,PREVP,NXXT,ΔTOOLP
GO	TO	SAMEPAGE

Commands for MACRO Display Construction

Command	Mod	Data
INPUT	SPEC	SINGLE,INVISIBLE
	CURSOR	→
SHOW	WINDOW	BOTL →
	RBOX	
	COLOR	CYAN
	DATA	((PAGE=MAXPAGE)∨(PAGE=1)):BOX2,BOX1

AA.6.1.1.S:SET2/1

Commands for MACRO Response Analysis

Command	Mod	Data
COMPUTE	IF	PAGE≥2
	CALC	PREVP←(PAGE-2):BACKP,$GM1,$GM2,$GM3,$GM4
		,$GM5,$GM6,$GM7,$GM8,$GM9,$GM10,$GM11,
		$GM12,$GM13
COMPARE	IF	(PAGE≠MAXPAGE)
	AREAS	INPUT=BACKW¦NEXTW
	TO	WHICHMATCH:SAMEPAGE,PREVP,NEXT
COMPARE	AREAS	INPUT=BACKW
	TO	PREVP
GO	TO	SAMEPAGE

AA.6.1.1.S:BCK2/1

Commands for MACRO Display Construction

Command	Mod	Data
INPUT	SPEC	SINGLE,INVISIBLE
	CURSOR	→
SHOW	WINDOW	BOTL →
	RBOX	
	COLOR	CYAN
	DATA	BOX1

AA.6.1.1.S:SET3/1

Commands for MACRO Response Analysis

AA.6.1.1.S:BCK3/1

Command	Mod	Data
COMPARE	AREAS	INPUT=BACKU
	TO	BACKP
GO	TO	SAMEPAGE

AA.6.1.1.5/1/B

Log? [+Y]

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ABV	+NOWHE
HELP	+NOWHE	HARB	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

AA.6.1.1.S/1/1

Commands for Display Construction

Command	Mod	Data
SHOW	POSIT	17 1
	DATA	PENT
INPUT	SPEC	SINGLE,INVISIBLE
	CURSOR	→
RBOX	WINDOW	NEXTB
GRAPHIC	NUMBER	16

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=NEXTB
	TO	$INTR
GO	IF	EMC=ENTER
	TO	$INTR
GO	TO	SAMEPAGE

Name	Class	Type	LV	Use	Value/Array
PENT	Text			PG	2

C( )L($BEGN)T(C,)   AA.6.1.1.S/1/1

Log? +Y

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER		TIMER	+	NEXT	$2
CA	+	WA	+	UN	+

PENT
For the next page, mark this box. → NEXT

AA.6.1.1.S/1/2

M-1 TANK DEMONSTRATION

This demonstration utilizes an innovation known as hypertext. This means that some of the word in the text that you will read are colored cyan and that when you touch these words with your light pen, you will see a graphic showing the location of the named part in the M-1 tank. For example, touch the word cyan in this sentence. Do this now.

C( )L($2)T(C,)   AA.6.1.1.S/1/2

Log? [+Y] | ATTN Functions to Inhibit
            | +

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETURN	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	$INTR
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

Commands for Display Construction

Command	Mod	Data
SHOW	WINDOW	BOTL
	RBOX	
	DATA	BOX1
RBOX	WINDOW	CBOX
INPUT	SPEC	SINGLE,INVISIBLE
	CURSOR	→

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=CBOX!BACKW
	TO	WHICHMATCH:SAMEPAGE,$CYAN,$INTR
GO	TO	SAMEPAGE

Name	Class	Type	LV	Use	Value/Array
CBOX	Window		PG	3	12 16,12 21

AA.6.1.1.S/1/3

Commands for Display Construction

Command	Mod	Data
RBOX	WINDOW	GBOX
INPUT	SPEC	SINGLE,INVISIBLE
	CURSOR	→ ↓

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=GBOX
	TO	$GREN
GO	TO	SAMEPAGE

Name	Class	Type	LV	Use	Value/Array
GBOX	Window		PG	3	11 18,11 19

The word cyan refers to the color shown here →

In addition to words that are colored cyan, you will see a box that looks like this → on some of the pages. Whenever a box like this is present, you can touch it to see graphics of the M-1 tank assembly that you are working on. Mark the green box now.

c( )L($CYAN)T(C,)   AA.6.1.1.S/1/3

Log? +Y

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
CO	+NOWHE	SKIP	+NOWHE	BACK	$2
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

Commands for Display Construction

Command	Mod	Data
GRAPHIC	NUMBER	51
	POSIT	2 1
INPUT	SPEC	SINGLE,INVISIBLE
	CURSOR	→
SHOW	WINDOW	NEXTB
	RBOX	
	COLOR	CYAN
	DATA	NEXT →

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=NEXTB
	TO	$1
GO	TO	SAMEPAGE

AA.6.1.1.S/1/4
To see more graphics of parts of
the tank, touch the NEXT box
at the bottom of the page.

This
option is
not available
here.
Now just touch this box. ———— AA.6.1.1.S/1/4
C( )L($GREN)T(C,)

Log? +Y | ATTN Functions to Inhibit |
+

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	$CYAN
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

Commands For Display Construction

Command	Mod	Data
INPUT	SPEC	SINGLE,INVISIBLE
SHOW	CURSOR	
	WINDOW	NEXTB
	RBOX	
	COLOR	CYAN
	DATA	NEXT

Commands For Response Analysis

Command	Mod	AREAS	Data
COMPARE		AREAS	INPUT=NEXTB
GO		TO	$INTR
		TO	SAMEPAGE

By touching the NEXT box, you moved to the next page. Whenever you see this box it will work this way. The BACK box takes you back one page in the same way. Other cyan boxes will appear from time to time and they will take you to displays that are on the subject named. TOOLS for example, takes you to a display listing the tools that you need for the task you are working on at the moment. (The cyan boxes here are not activated, since this is the intro-duction.)You will usually find them at the bottom of your screen. Mark here.

AA.6.1.1.S/1/5

C( )L($1)T(C,)

Log? +Y

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	$GREN
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

AA.6.1.1.S/2/B

Log? [+Y]

| ATTN Functions to Inhibit |
| + |

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

Name	Class	Type	LV	Use	Value/Array
TANK1	Window		FR	21	1 2,1 3

AA.6.1.1.S/2/1

M-1 TANK MENU

You are Sp/4 Johnson the company turret mechanic and your Sergeant has told you to replace the angle bracket for the radio receiver antenna on M-1 tank, *12345.

● Touch any word this color for more information.
● Touch boxes that look like this ■ to see pictures.

1. General Maintenance Instructions
2. Equipment Conditions
3. Task Menu

c( )L($INTR)T(C,   )   AA.6.1.1.S/2/1

Log? [+Y]

ATTN Functions to Inhibit
+

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	$BEGN
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+
CA	+	WA	+	UN	+

Commands for Display Construction

Command	Mod	Data
INCLUDE	MACRO	SET3
RBOX	WINDOW	A

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=BACKW
	TO	$BEGN
COMPARE	AREAS	INPUT=PICK2!PICK3!PICK4
	CALC	BACKP←$INTR
	TO	WHICHMATCH:SAMEPAGE,P2,P3,P4
	TO	SAMEPAGE
GO	TO	P2
GO	LABEL	GMI←TRUE
	CALC	$GMI
	TO	P3
GO	LABEL	EC←TRUE
	CALC	$EC
	TO	P4
GO	LABEL	$MENU
	TO	

Name	Class	Type	LV	Use	Value/Array
PICK1	Window		PG	1	12 4,12 5
EC	Variable	Flag	PG	2	
GMI	Variable	Flag	PG	2	
PICK2	Window		PG	2	13 4,13 5
PICK3	Window		PG	2	14 4,14 5
PICK4	Window		PG	2	15 4,15 5
P2	Label		PG	2	2/1/R4
P3	Label		PG	2	2/1/R5
P4	Label		PG	2	2/1/R6

AA.6.1.1.S/2/2
M-1 ANTENNA MAINTENANCE PROCEDURE
TASK MENU

TASK 1: REMOVE RECEIVER-TRANSMITTER ANTENNA BASE

TASK 2: REMOVE RECEIVER ANTENNA BASE

TASK 3: REPLACE ANTENNA GROUND STRAP OR ANGLE BRACKET

TASK 4: INSTALL RECEIVER ANTENNA BASE

TASK 5: INSTALL RECEIVER-TRANSMITTER ANTENNA BASE

c( )L($MENU)T(C,)   AA.6.1.1.S/2/2

Log? +Y | ATTN Functions to Inhibit |
         | + |

Branch Specification Table

Code	Label	Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+		
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE		
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE		
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE		
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE		
ENTER	+	TIMER	+	NEXT	+		
CA	+	WA	+	UN	+		

Commands for Display Construction

Command	Mod	Data
SHOW	POSIT	17 10
	COLOR	BLUE
	DATA	↓Mark your choice of task.↓
SHOW	POSIT	17 1
	DATA	BOX1
COLOR	IF	TSK1=6
	WINDOW	TASK1
	COLOR	GREEN
COLOR	IF	TSK2=5
	WINDOW	TASK2
	COLOR	GREEN
COLOR	IF	TSK3=10
	WINDOW	TASK3
	COLOR	GREEN
COLOR	IF	TSK4=5
	WINDOW	TASK4
	COLOR	GREEN
COLOR	IF	TSK5=6
	WINDOW	TASK5
	COLOR	GREEN
INPUT	SPEC	SINGLE,INVISIBLE
	CURSOR	↓
RBOX	WINDOW	1 1,17 43

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=TASK1!TASK2!TASK3!TASK4!TASK5!
		BACKB
	TO	WHICHMATCH:SAMEPAGE,$T1P1,$T2P1,$T3P1,
		$T4P1,$T5P1,$INTR
GO	TO	SAMEPAGE

Name	Class	Type	LV	Use	Value/Array
TASK1	Window		PG	3	4 2,4 10
TASK2	Window		PG	3	7 2,7 10
TASK3	Window		PG	3	9 2,9 10
TASK4	Window		PG	3	12 2,12 10
TASK5	Window		PG	3	14 2,14 10

Commands for Display Construction

Command	Mod	Data
REMARK	REMARK	TOPIC: TS1,TS2,TS3,TS4,TS5

In this chapter, the variable arrays TS1, TS2, TS3, TS4, and TS5 are used to keep track of steps completed for each task.

EXAMPLES:

TS1(0)=TRUE means step 1 for task 1 was done.
TS4(2)=TRUE means step 3 for task 4 was done.

Command	Mod	Data
INCLUDE	REMARK	TOOLS←FALSE
CALC	MACRO	SET1
	PARAMS	$T1P1 $\overset{5}{D}$ Current page's label
COLOR	IF	T1s(0)=TRUE
	WINDOW	STEP1
	COLOR	GREEN
COLOR	IF	T1S(1)=TRUE
	WINDOW	STEP2
	COLOR	GREEN

Commands for Response Analysis

Command	Mod	Data
COMPARE	AREAS	INPUT=TANK1!SCRW!WASH!BASE!MNT!CONN
	CALC	N←WHICHMATCH;TANK←-(N=1):FALSE,TRUE
	TO	N:SAMEPAGE,$TANK,$GR2,$GR2,$GR3, $GR4 $\overset{5}{D}$
		Branch to a graphic
COMPARE	AREAS	INPUT=GIN1!TLS1!PPS1
	TO	WHICHMATCH:SAMEPAGE,$GMI,$TS1,$PP1
COMPARE	AREAS	INPUT=STEP1!STEP2
	CALC	I←WHICHMATCH-1;T1S(I)←TRUE;X←T1S(0)+T1S(1) $\overset{5}{D}$
		T1S(0)=TRUE - user did step 1 of TASK 1

AA.6.1.1.S/2/3
TASK 1. REMOVE RECEIVER-TRANSMITTER ANTENNA BASE

Review	2. Tools and Supplies	3. Preliminary Procedures

1. Unscrew and take out four screws and washers from receiver-transmitter antenna base with socket and handle.

2. Lift base off mount gently with pry bar just far enough to reach two harness connectors.

c( )L($T1P1)T(C,   )   AA.6.1.1.S/2/3

Log? +Y | ATTN Functions to Inhibit |
+

Branch Specification Table

Code	Label	Code	Label	Code	Label
OFF	+	EXIT	+RETUR	ON	+
GO	+NOWHE	SKIP	+NOWHE	BACK	+NOWHE
OBJ	+NOWHE	MAP	+RETUR	ADV	+NOWHE
HELP	+NOWHE	HARD	+NOWHE	EASY	+NOWHE
RULE	+NOWHE	EXAMP	+NOWHE	PRAC	+NOWHE
ENTER	+	TIMER	+	NEXT	+NOWHE
CA	+	WA	+	UN	+

TICCIT GRID

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EXPLANATIONS:

M-1 ANTENNA MAINTENANCE PROCEDURE

for the next page, mark this box. → NEXT

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M-1 TANK MENU

You are Sp/4 Johnson the company turret
mechanic and your Sergeant has told you
to replace the angle bracket for the radio
receiver antenna on M-1 tank, #12345.

● Touch any word this color for more
  information.

● Touch boxes that look like this ■ to
  see pictures.

1. General Maintenance Instructions
2. Equipment Conditions
3. Task Menu

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M-1 ANTENNA MAINTENANCE PROCEDURE
TASK MENU

TASK 1: REMOVE RECEIVER-TRANSMITTER ANTENNA BASE

TASK 2: REMOVE RECEIVER ANTENNA BASE

TASK 3: REPLACE ANTENNA GROUND STRAP OR ANGLE BRACKET

TASK 4: INSTALL RECEIVER ANTENNA BASE

TASK 5: INSTALL RECEIVER-TRANSMITTER ANTENNA BASE

BACK   Mark your choice of task.

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GENERAL MAINTENANCE INSTRUCTIONS

Follow these maintenance practices
when working on communications equipment.
Be sure to observe all warnings.

CAUTION

Before putting on or taking off
radio equipment, make sure VEHICLE
MASTER POWER switch is set to OFF.
Turn off POWER switches of receiver-
transmitter and auxiliary receiver.
Failure to do so may damage equipment.

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EXPLANATIONS:

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CARE OF EQUIPMENT

1. Put covers on antennas and communica-
   tion equipment when equipment is shut
   down during low temperature operation.
   This keeps ice and frost off equipment.

2. Keep equipment wiped clean in desert
   and dusty conditions. Make sure that
   sand or dust does not gather or intake
   cooling vents where it can get inside
   equipment.

3. Wipe up any wet or damp places. Take
   steps to keep water out of turret.

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EXPLANATIONS:

CLEANING ELECTRICAL COMPONENTS

WARNING

Solvent can irritate skin and can give off harmful vapors. To avoid injury, keep solvent away from heat, wear protective clothing, and use in a well-ventilated area.

1. Clean off oil, grease, and dirt from cable harnesses, parts, and connectors and cover clean parts with dust caps, plugs or lint-free cloths.

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EXPLANATIONS:

(Cleaning Electrical Components — cont'd)

2. Rub corrosion off connector contacts and other pats with a pencil eraser. Remove rust by scraping, wire brushing, or both. If rust damage is too great, or on small thin parts that would be weakened by rust, you may need to replace the part. Find the cause of the rust and correct the problem.

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EXPLANATIONS:

(Cleaning Electrical Components -- cont'd)

WARNING

Cleaning compound can cause skin rash and can give off harmful vapors. To avoid injury, use in a well-ventilated area. Wash immediately with soap and water if compound gets on skin or clothing.

3. Threaded holes in metal must be thoroughly clean when sealing compounds are used to lock screws in place. Take off old preservative or sealing

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EXPLANATIONS:

(Cleaning Electrical Components -- cont'd)

compounds from threads with tap and tap
wrench. Blow loose particles out of
holes with compressed air, then clean
threads with solvent cleaning compound
MIL-C-81302 and brush. Let holes dry
before putting in screws.

4. Check intake cooling vents and screens
and exhaust ducts for anything that
will block flow of air. Clean intake
vents and screens to keep dirt from
getting inside equipment.

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TAGGING ELECTRICAL PARTS

1. Tag all harnesses, wires, and connectors for identification and location any time one is lifted out of position. Tagging saves time and helps avoid mistakes. Tag any parts before they are taken apart for repairs. Remove tags after parts are put back together.

EXPLANATIONS:

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2 EXPLANATIONS:

REPLACING ELECTRICAL WIRING OR COMPONENTS

1. Always look carefully at equipment for likely signs of trouble while doing routine work. Tie down harness that is free to move and rub against metal. If you look for possible troublespots and make repairs at once, you can cut down on repair time and extra work. Replace any harness or harness areas that have splits, tears, or worn spots. If troubleshooting isolates a broken harness, replace that harness.

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EXPLANATIONS:

(Replacing Electrical Wiring -- cont'd)

2. Do not put a trouble light within 2 inches of a fire sensor. A trouble light too near a fire sensor can cause fire extinguishers to discharge.

3. Replace broken or torn instrument or gage lenses, rubber eye cups, head-rests, and other parts.

4. Replace any damaged or crossthreaded screws and nuts. Check for torn or stretched gaskets and leaks.

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EXPLANATIONS:

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(Replacing Electrical Wiring -- cont'd)

5. Replace any burned out lamps or fuses.
   If you cannot replace a lamp or fuse
   right away, tag it and go back to it
   later.

6. Tighten all loose parts. Use correct
   torque valves when tightening screws
   and nuts. Straighten bent parts where
   possible and check for cracks.
   Replace all missing parts.

7. Make sure that ground points in
   electrical system are kept clean, free
   of corrosion, and tight.

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EXPLANATIONS:

(Replacing Electrical Wiring -- cont'd)

8. Check mountings, parts, and shafts for proper electrical connection and alignment.

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REMOVING OR INSTALLING CONNECTORS

1. If connectors cannot be removed by hand, use slip joint conduit style pliers with plastic jaw inserts to loosen them. Finish removal by hand. Straighten any bent contacts with long round nose pliers. When installing connectors on larger harnesses, another soldier will be needed to help align the mating ends of the cable. Make sure that contacts and keyways line up. Tighten twist-snap-type connectors until a click is heard. Tighten screw-on-type connectors until the ratchet noise is heard to indicate that connectors are tight.

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EXPLANATIONS:

(Removing or Installing Connectors--cont'd)

2. Put a protective cap or cover over any electrical connector that is left uncovered. Cover connectors on any items being moved to or from the tank. Take off covers when connectors are put back.

3. Look at connectors for broken, missing, or pushed in contacts before making any connections. If a connector is bad notify support maintenance.

4. Tighten connectors by hand whenever tools are not called out.

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EQUIPMENT CONDITIONS

- Tank parked.
- Parking brake set.
- VEHICLE MASTER POWER switch set to OFF.
- Transmission shift control set to N.

BACK

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TICCIT GRID

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1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43

■ TASK 1. REMOVE RECEIVER-TRANSMITTER
ANTENNA BASE

Mark	1. General Instructions
to	2. Tools and Supplies
Review	3. Preliminary Procedures

1. Unscrew and take out four screws and washers from receiver-transmitter antenna base with socket and handle.

2. Lift base off mount gently with pry bar just far enough to reach two harness connectors.

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(Task 1 cont'd)

3. Unscrew and take off two connectors.

4. Unscrew and take off screw, two lockwashers, and ground strap from standoff with screwdriver. Get rid of lockwashers.

5. Take off base and gasket. Get rid of gasket.

6. Look at base for cracks or breaks. If bad, turn in. If OK, set aside for later use.

BACK   TOOLS   NEXT

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EXPLANATIONS:

(Task 1 cont'd)

Follow-on Maintenance:

To install receiver-transmitter antenna base, refer to Task 5.

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EXPLANATIONS:

TOOLS AND SUPPLIES - TASK 1

Tools:
● bar, pry
● handle, socket wrench, ratchet, 3/8-inch square drive
● pliers, slip joint, conduit style with plastic jaw inserts
● screw driver, flat tip
● socket, socket wrench, 3/8-inch square drive, 9/16-inch

Supplies:
● pencil
● protective caps and plugs (bulk)
● tag, marker (as required)

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PRELIMINARY PROCEDURES - TASK 1

● Remove receiver-transmitter antenna, refer to TM 9-2350-255-10.

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■ TASK 2. REMOVE RECEIVER ANTENNA BASE

Mark	1. General Instructions
to	2. Tools and Supplies
Review	3. Preliminary Procedures

1. Unscrew and take out four screws and washers from receiver antenna base with socket and handle.

2. Lift base off mount gently with pry bar just far enough to reach harness connector. Unscrew and take off connector.

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(Task 2 cont'd)

3. Unscrew clamp thumbscrew of ground strap with pliers. Take off strap.

4. Take off base and gasket. Get rid of gasket.

5. Look at base for cracks or breaks. If bad, turn in. If OK, set aside for later use.

BACK   TOOLS   NEXT

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(Task 2 cont'd)

Follow-on Maintenance:

To install receiver antenna base, refer to Task 4.

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TOOLS AND SUPPLIES - TASK 2

Tools:
- bar, pry
- handle, socket wrench,ratchet, 3/8-inch square drive
- pliers, slip joint
- socket, socket wrench, 3/8-inch square drive, 9/16-inch

Supplies:
- protective caps and plugs (bulk)

EXPLANATIONS:

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PRELIMINARY PROCEDURES - TASK 2

● Remove receiver antenna, refer to TM 9-2350-255-10.

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■ TASK 3. REPLACE ANTENNA GROUND STRAP
OR ANGLE BRACKET

Mark	1. General Instructions
to	2. Tools and Supplies
Review	3. Preliminary Procedures

Do this task to replace bad parts in either the receiver antenna base or the receiver-transmitter antenna base.

For instructions, mark the box next to the part you want to replace.

■ ground strap   ■ angle bracket

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C.U.L.S   FILE / FUNCTION OR FRAME / PAGE

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J9   J9
K10   K10
L11   L11
M12   M12
N13   N13
P14   P14
Q15   Q15
R16   R16

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TICCIT GRID

EXPLANATIONS:

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(Task 3 cont'd)

To replace GROUND STRAP:

First, remove ground strap or bracket:

1. Unscrew and take out screw, two lockwashers, and antenna ground strap from flange with socket, adapter extension, and handle. Get rid of lockwashers.

2. Turn in bad ground strap.

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■ (Replace GROUND STRAP - Task 3 cont'd)

Next, install ground strap:

3. Put one new lockwasher on each side of new ground strap. Line up hole in ground strap with hole in flange.

4. Screw in and tighten screw with socket, adapter, extension and handle.

| BACK | TOOLS | NEXT |

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(Task 3 cont'd)

■ To replace ANGLE BRACKET

First, remove angle bracket:

1. Unscrew and take out screw and
lockwasher from angle bracket and
flange with socket, adapter, extension,
and handle. Get rid of lockwasher.

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EXPLANATIONS:

1

■ (Replace ANGLE BRACKET - Task 3 cont'd)

2

2. Slide loop clamp with bracket up
   harness to reach screw. Unscrew and
   take out screw and lockwasher from
   clamp and bracket with socket, adapter,
   extension and handle.
   Get rid of lockwasher.

3. Turn in bracket. Look at clamp for
   cracks and breaks. If bad, turn in.
   If OK, leave clamp on harness.

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BACK        TOOLS        NEXT
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EXPLANATIONS:

■ (Replace ANGLE BRACKET - Task 3 cont'd)

Next, install angle bracket:
4. Line up bottom hole in new bracket with hole in clamp. Screw in screw and new lockwasher.

5. Slide clamp with bracket halfway down harness. Tighten screw with socket, adapter, extension and handle.

6. Line up top hole in bracket with hole in flange. Screw in and tighten screw and new lockwasher with socket, adapter, extension and handle.

BACK   TOOLS   NEXT

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SCREW

Step 1:
Unscrew and take out screw and lockwasher
from angle bracket and flange with socket,
adapter, extension, and handle. Get rid of
lockwasher.

[BACK]

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CLAMP

Step 2:
Slide loop clamp with bracket up harness to
reach screw. Unscrew and take out screw and
lockwasher from clamp and bracket with
socket, adapter, extension and handle. Get
rid of lockwasher.

[BACK]

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EXPLANATIONS:

A1   B2   C3   D4   E5   F6   G7   H8   J9   K10   L11   M12   N13   P14   Q15   R16

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Row labels: A1 B2 C3 D4 E5 F6 G7 H8 J9 K10 L11 M12 N13 P14 Q15 R16

CLAMP

Step 3:
Turn in bracket. Look at clamp for cracks
and breaks. If bad, turn in. If OK, leave
clamp on harness.

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ANGLE
BRACKET

Step 4:
Line up bottom hole in new bracket with
hole in clamp. Screw in screw and new
lockwasher.

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EXPLANATIONS:

Step 5:
Slide clamp with bracket halfway down harness. Tighten screw with socket, adapter, extension and handle.

SCREW

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1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43

FLANGE

Step 6:
Line up top hole in bracket with hole in
flange. Screw in and tighten screw and new
lockwasher with socket, adapter, extension
and handle.

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EXPLANATIONS:

Follow-on Maintenance for
Receiver Transmitter Antenna Ground Strap
or Angle Bracket:

1. Install receiver-transmitter antenna base, refer to Task 5.

2. Install receiver-transmitter antenna, refer to TM 9-2350-255-10.

3. Check operation of receiver-transmitter system, refer to TM 9-2350-255-10.

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EXPLANATIONS:

Follow-on Maintenance for
Receiver Antenna Ground Strap or
Angle Bracket:

1. Install receiver antenna base,
   refer to Task 4.

2. Install receiver antenna,
   refer to TM 9-2350-255-10.

3. Check operation of auxiliary receiver
   system, refer to TM 9-2350-255-10.

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TOOLS AND SUPPLIES - TASK 3

Tools:
● adapter, socket wrench, 3/8-inch square drive to 1/4-inch square drive
● extension, socket wrench, ratchet, 3/8-inch square drive
● handle, socket wrench, ratchet, 3/8-inch square drive
● socket, socket wrench, 3/8-inch square drive, 5/16 inch

Supplies-to replace ground strap:
● lockwashers (2)
● strap, ground

Supplies to replace angle bracket:
● lockwashers (2)
● bracket, angle

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EXPLANATIONS:

PRELIMINARY PROCEDURES - TASK 3

To remove transmitter antenna ground strap
or angle bracket:

● remove receiver-transmitter antenna,
  refer to TM 9-2350-255-10.

● remove receiver-transmitter antenna
  base, refer to Task 1.

To remove receiver antenna ground strap or
angle bracket:

● remove receiver antenna,
  refer to TM 9-2350-155-10.

● remove receiver antenna base,
  refer to Task 2.

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EXPLANATIONS:

■ TASK 4. INSTALL RECEIVER ANTENNA BASE

Mark	1. General Instructions
to	2. Tools and Supplies
Review	3. Preliminary Procedures

1. Put new gasket on antenna mount.

2. Put thumbscrew clamp of ground strap on antenna base connector. Tighten thumbscrew with pliers.

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(Task 4 cont'd)

3. Screw on and tighten harness connector to connector.

4. Put a light coat of oil on thread of four screws.

5. Screw in four screws and washers with socket and handle. Torque screws between 80 and 100 pound inches (9 and 11 Newton meters) with socket and torque wrench.

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EXPLANATIONS:

(Task 4 cont'd)

Follow-on Maintenance:

1. Install receiver antenna, refer to TM 9-2350-255-10.

2. Check operation of auxiliary receiver system, refer to TM 9-2350-255-10.

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TOOLS AND SUPPLIES - TASK 4

Tools:
- handle, socket wrench, ratchet, 3/8-inch square drive
- oiler, hand
- pliers, slip joint
- socket, socket wrench, 3/8-inch square drive, 9/16-inch
- wrench, torque, 0 to 120 inch-pound

Supplies:
- gasket
- lubricating oil, MIL-L-2104C

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EXPLANATIONS:

TOOLS AND SUPPLIES - TASK 4

Tools:
- handle, socket wrench, ratchet, 3/8-inch square drive
- oiler, hand
- pliers, slip joint
- socket, socket wrench, 3/8-inch square drive, 9/16-inch
- wrench, torque, 8 to 128 inch-pound

Supplies:
- gasket
- lubricating oil, MIL-L-2104C

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■ TASK 5. INSTALL RECEIVER-TRANSMITTER
ANTENNA BASE

Mark	1. General Instructions
to	2. Tools and Supplies
Review	3. Preliminary Procedures

1. Put new gasket on antenna mount.

2. Screw on and tighten two harness connectors to connectors of receiver-transmitter antenna base.

3. Screw in and tighten screw, ground strap, and two new lockwashers on standoff with screwdriver.

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EXPLANATIONS:

(Task 5 cont'd)

4. Lower base on mount. Check that connectors are away from flange and that holes of base are lined up with holes of mount.

5. Put a light coat of oil on threads of four screws.

6. Screw in four screws and washers with socket and handle. Torque screws between 80 and 100 pounds (9 and 11 Newton meters) with socket and torque wrench.

BACK   TOOLS   NEXT

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PAGE

EXPLANATIONS:

(Task 5 cont'd)

Follow-on Maintenance:

1. Install receiver-transmitter antenna, refer to TM 9-2350-255-10.

2. Check operation of receiver-transmitter system, refer to TM 9-2350-255-10.

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TOOLS AND SUPPLIES - TASK 5

Tools:
- handle, socket wrench, ratchet, 3/8-inch square drive
- screwdriver, flat tip
- socket, socket wrench, 3/8-inch square drive, 9/16-inch
- wrench, torque, 0 to 120 inch-pounds
- oiler, hand

Supplies:
- gasket
- lockwasher (two required)
- lubricating oil, MIL-L-2104C

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EXPLANATIONS:

PRELIMINARY PROCEDURES - TASK 5

● Remove receiver-transmitter antenna base, refer to Task 1.

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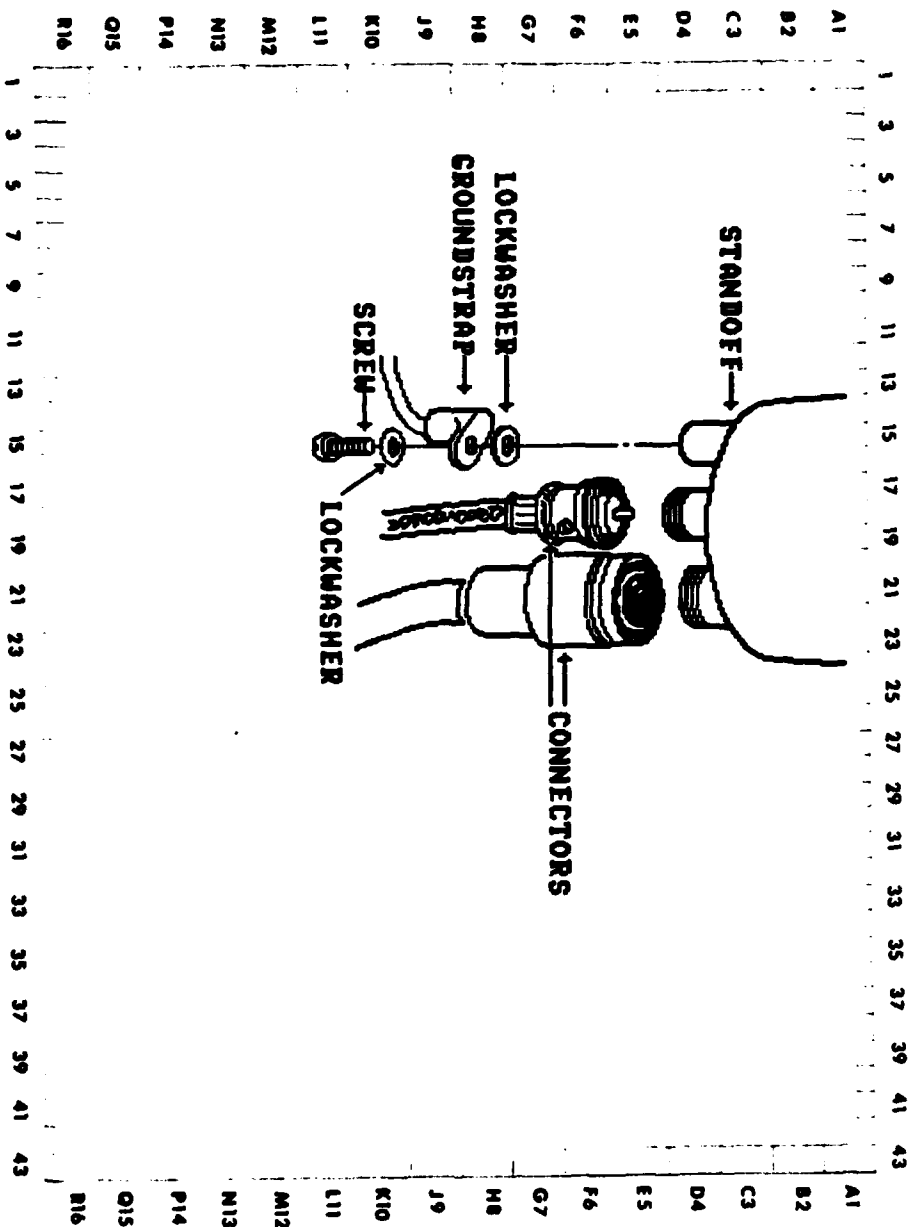
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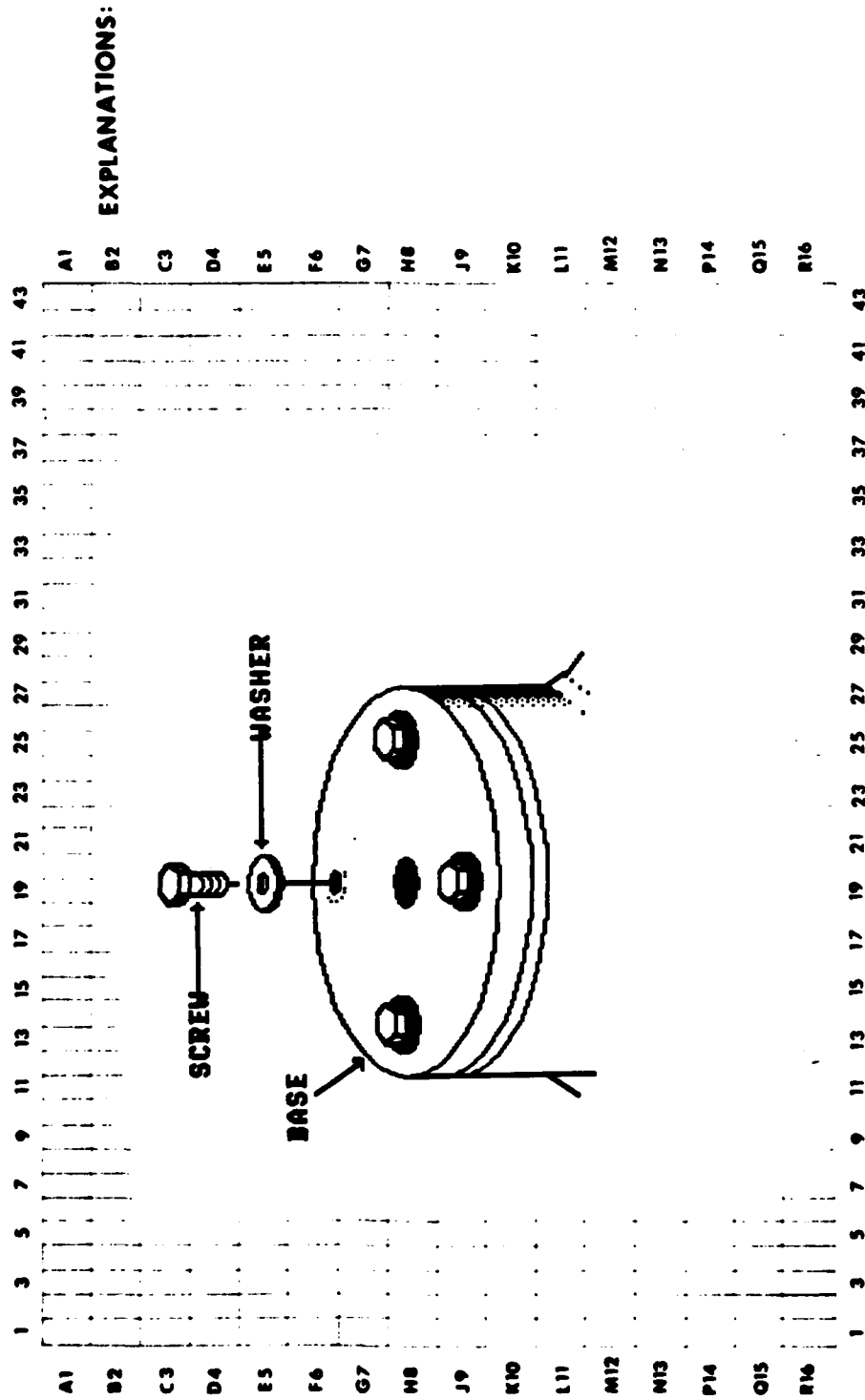C.U.L.S   FILE / FUNCTION / PAGE OR FRAME

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SCREW

WASHER
(4 PLACES)

BASE

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BASE
GASKET
MOUNT

C( ) G( ) A( ) T( )

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STANDOFF
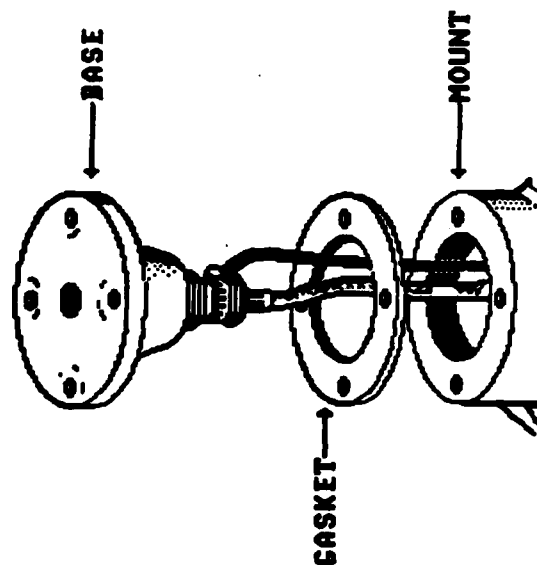LOCKWASHER
GROUNDSTRAP
SCREW
LOCKWASHER
CONNECTORS

A1
B2
C3
D4
E5
F6
G7
H8
J9
K10
L11
M12
N13
P14
Q15
R16

1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43
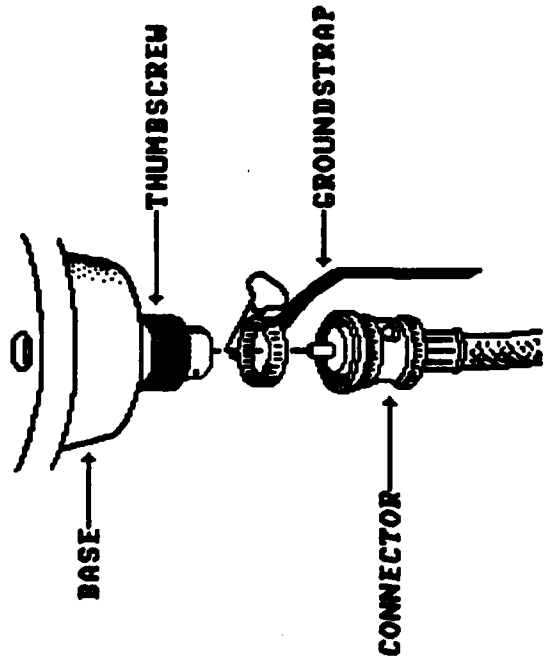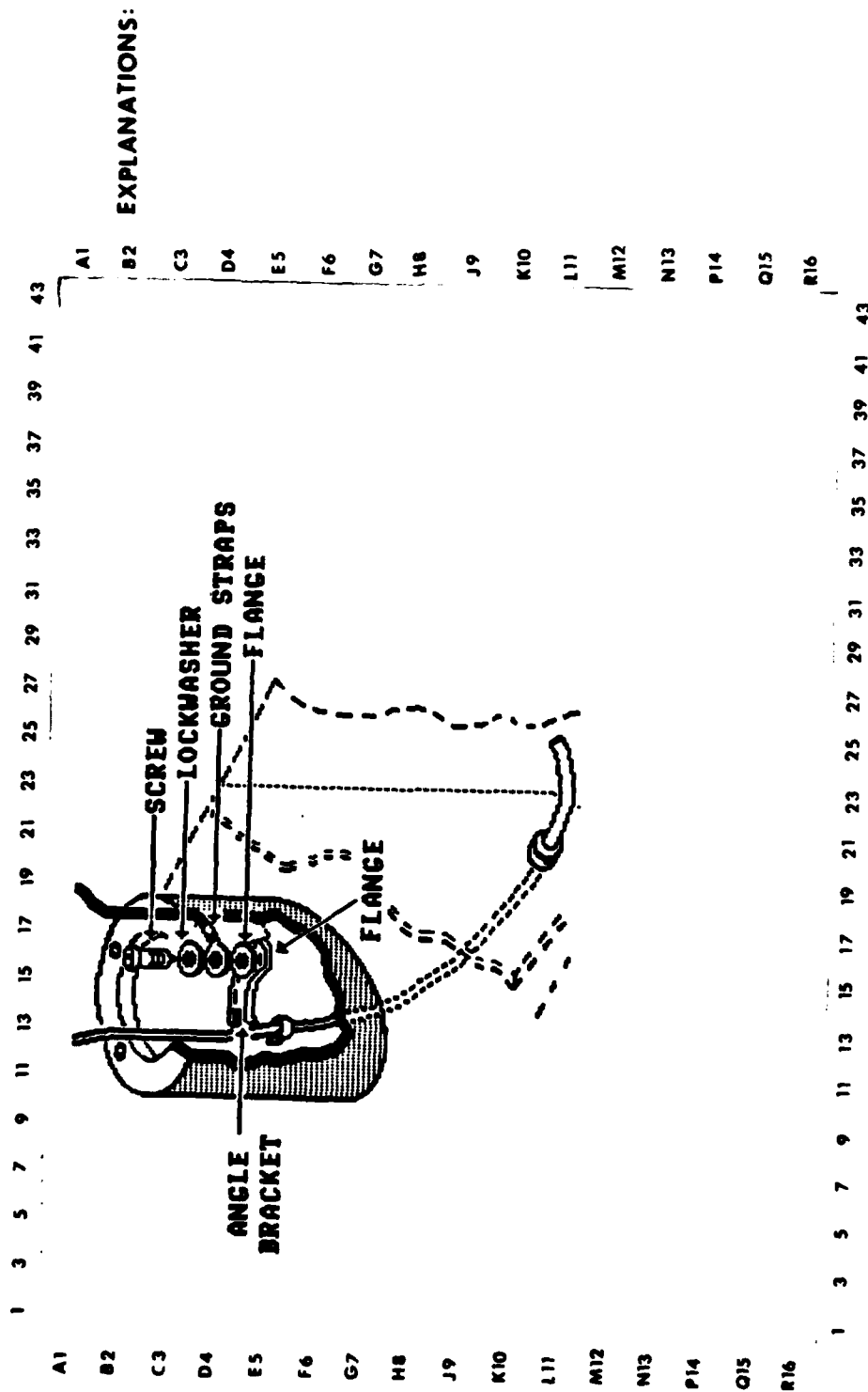
GRAPHIC WINDOW STARTS _____ ENDS _____

C( ) G( ) A( ) T( )

TICCIT-218

TICCIT GRID

C.U.L.S • FILE / FUNCTION OR FRAME / PAGE

EXPLANATIONS:

A1
B2
C3
D4
E5
F6
G7
H8
J9
K10
L11
M12
N13
P14
Q15
R16

WASHER

SCREW

BASE

1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43

A1
B2
C3
D4
E5
F6
G7
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Q15
R16

C( ) G( ) A( ) T( )

GRAPHIC WINDOW STARTS _____ ENDS _____

TICCIT-218

TICCIT GRID

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EXPLANATIONS:

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    1  3  5  7  9  11  13  15  17  19  21  23  25  27  29  31  33  35  37  39  41  43
A1
B2
C3
D4
E5
F6
G7
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Q15
R16
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BASE

GASKET

MOUNT

C( ) G( ) A( ) T( )

GRAPHIC WINDOW STARTS _____   ENDS _____

TICCIT-218

TICCIT GRID

C.U.L.S _____ FILE / FUNCTION OR FRAME / PAGE

EXPLANATIONS:

	1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43	
A1		A1
B2		B2
C3		C3
D4		D4
E5		E5
F6		F6
G7		G7
H8		H8
J9		J9
K10		K10
L11		L11
M12		M12
N13		N13
P14		P14
O15		Q15
R16		R16
	1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43	

THUMBSCREW

GROUNDSTRAP

BASE

CONNECTOR

C( ) G( ) A( ) T( )

GRAPHIC WINDOW STARTS _____ ENDS _____

TICCIT-218

TICCIT GRID

1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43
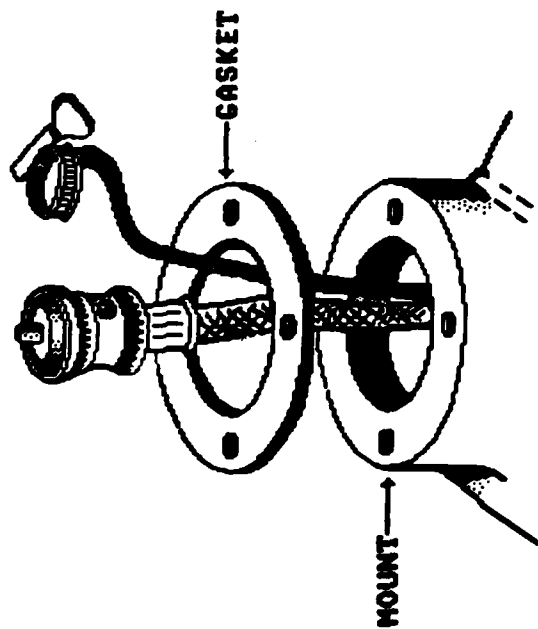
A1
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C3
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L11
M12
N13
Q15
R16

SCREW
LOCKWASHER
GROUND STRAPS
FLANGE
FLANGE
ANGLE BRACKET

C.U.L.S . FILE / FUNCTION OR FRAME / PAGE

EXPLANATIONS:

A1
B2
C3
D4
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43 41 39 37 35 33 31 29 27 25 23 21 19 17 15 13 11 9 7 5 3 1

43

C( ) G( ) A( ) T( )

GRAPHIC WINDOW STARTS _____ ENDS _____

TICCIT-218

TICCIT GRID

C.U.L.S • FILE / FUNCTION OR FRAME / PAGE

EXPLANATIONS:

A1
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1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43

A1
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HARNESS
SCREW
LOCKWASHER
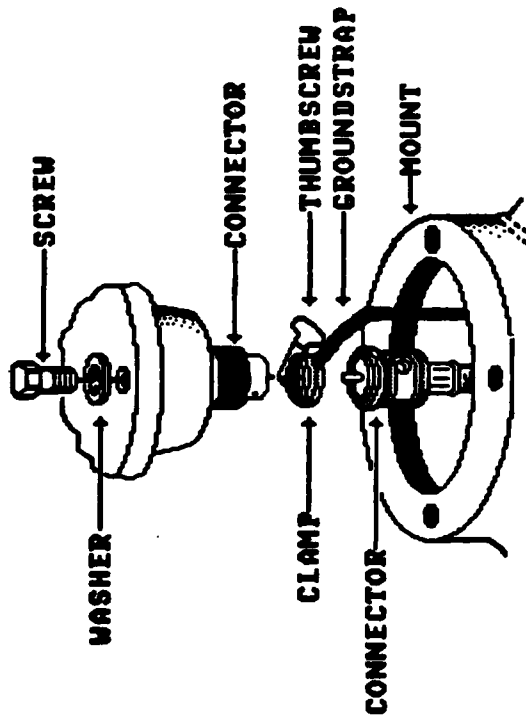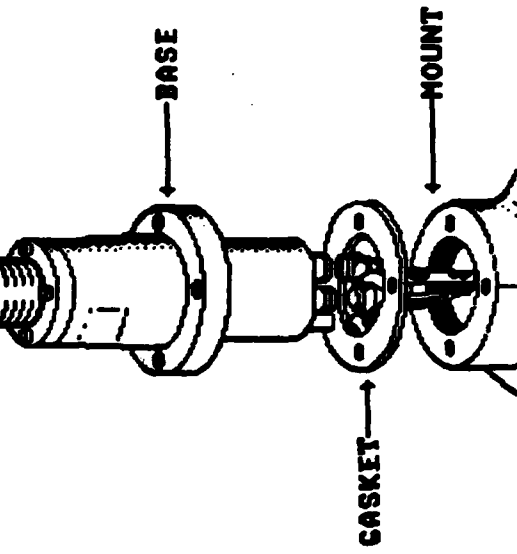SCREW
LOCKWASHER
CLAMP
FLANGE
FLANGE
ANGLE BRACKET

1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43

C( ) G( ) A( ) T( )

GRAPHIC WINDOW STARTS _____ ENDS _____

TICCIT-218

TICCIT GRID

C.U.L.S   ———•——— FILE / FUNCTION OR FRAME / PAGE

EXPLANATIONS:

GASKET

MOUNT

	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43
A1
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C( ) G( ) A( ) T( )

GRAPHIC WINDOW STARTS _____ ENDS _____

TICCIT-218

TICCIT GRID

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N13
P14
Q15
R16

SCREW · WASHER · CONNECTOR · THUMBSCREW · CLAMP · GROUNDSTRAP · CONNECTOR · MOUNT

C( ) G( ) A( ) T( )

GRAPHIC WINDOW STARTS _____ ENDS _____

TICCIT-218

TICCIT GRID

C.U.L.S   FILE / FUNCTION OR FRAME / PAGE

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BASE

MOUNT

GASKET

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GRAPHIC WINDOW STARTS _____ ENDS _____

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43 41 39 37 35 33 31 29 27 25 23 21 19 17 15 13 11 9 7 5 3 1

CONNECTORS

FLANGE

C ( ) G ( ) A ( ) T ( )

GRAPHIC WINDOW STARTS _____ ENDS _____

TICCIT-218